



Endurance News : Helping you 'FUEL RIGHT, FEEL GREAT!'® since 1992

Chocolate Whey

NEW flavor coming this summer!

Author : Steve Born

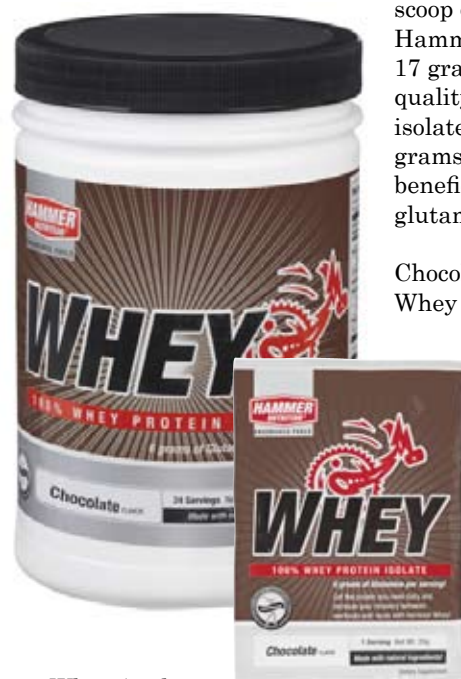
Chocolate Whey? No Way. Way!

Once again, you asked and we delivered. The newest flavor of Hammer Whey—Chocolate—is expected to be available at some point in July (exact ETA unavailable as of now). As with all of the flavored Hammer Nutrition fuels, it took many rounds of taste testing a variety of formulations before we all agreed that we nailed it flavor-wise (you'd be amazed at just how fastidious we are in making sure the flavor is spot on). At any rate, we think you'll also agree that this new flavor of Hammer Whey is superb.

As is the case with the Vanilla and Chai flavored versions of Hammer Whey (and as you'd expect), the new Chocolate

flavor contains no refined sugar or artificial sweeteners or flavors; it's lightly sweetened with a hint of natural flavors and white stevia. We've also added a little lecithin (a beneficial nutrient in its own right) to the mix to enhance the texture. Every level scoop of Chocolate Hammer Whey provides 17 grams of the highest quality whey protein isolate and a huge 6 grams of the multi-beneficial amino acid, glutamine.

Chocolate Hammer Whey will be available in single serving packets and 24-serving/scoop containers. Keep checking the Hammer Nutrition website for updates on when this great new flavor will be in stock.





Powerful protein
Coming soon in **Chocolate!**

Single serve - \$2.99
24 servings - \$32.95

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Endurance Amino



"I can not say enough good things about Endurance Amino. I used it as directed and feel like a totally different rider."

I have raced two long cross country races on consecutive weekends. I raced Whiskey 50 and the next weekend raced the Idyllwild Spring Challenge 30 miler. The week in between I only took one day off and each ride I felt like going harder. I have never had the kind of power as I have felt since using Endurance Amino. As the hours go by I feel stronger. I take 4 pills after a long ride and the next day I don't even know I had worked hard the day before. I certainly wouldn't replace any of Hammer's other products but Endurance Amino is number one for me."

- Wendy Skean

Read more about this amazing new product in the article titled "The "Grey Area" of Fueling" on page 20.



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Our Mission

The objective of Endurance News is to provide you, the serious endurance athlete, with a valuable resource that you will find to be informative, educational, thought provoking, and helpful in your ongoing pursuit of optimum performance and health.

Endurance News features insightful articles on diet, nutrition, training, and



Brian, Dustin, Jason, Miles, and Steve prepare to leave for the 24 Hours Round the Clock race. Photo - Angela Nock

Welcome

Author : Brian Frank

Welcome to the 64th issue of Endurance News. Whether you've been reading our publication for years or are turning the pages of your first issue, I'm certain that you will find quite a few items of interest in this issue. The race reports and submissions from our clients continue to be my favorites. There is even one from me and my first experience in 24 hour relay mountain bike racing. Thank you to all of you who sent in material for this issue and all of our previous ones as well. If you have a race report or story, by all means, send it. Accompanying photos are much appreciated!

One thing you may notice in this issue is a lot more client feedback about the way we do business. I hope you'll enjoy reading the unsolicited feedback from your fellow Hammer enthusiasts. I want to share these with you because they really speak to the passion and commitment that my staff and I bring to the office everyday. The things we do to acknowledge how important you are to

us create a lot more work and cost us a lot of money, but we do it gladly because it's the right thing to do. You might think that sounds corny or somehow altruistic, but it's way more than that. To me, it's about taking a stand and striving for something more than profits. You may not believe me, but you can't fake what we are doing and there is no "short cut, automated, flip a switch and sit back counting the profits" way to accomplish what we've accomplished in the past 22 years and continue to do everyday. It only comes through caring and working hard every single day. Surely you've noticed that we are different than almost any company you deal with. We think you can and do recognize this and that you in return vote your approval by favoring us with your business and your hard earned dollars. People think I'm crazy, and maybe I am, but you benefit from my craziness if that is what it is.

I believe that the way I do business - and I really feel that it's not my way, just the right way - is how all businesses should be run : by putting the customer first, under promising and over delivering, producing legitimate products, listening to their feedback, and always treating them with respect. Which is why I marvel at how many companies out there, especially in our industry, raise big red flags in my mind : they don't do any of the things we do and yet people still buy products from them and keep them in business, for a while anyway. Their website lists no address, no names of owners, principals, or even managers. They offer no support resources, let alone a person you can call and get definitive answers from. They sponsor few or no events or athletes, instead spending their marketing dollars to run some display ads in magazines and wait for their website to start registering sales on their overhyped products. It amazes

other topics of interest for endurance athletes - written by myself as well as professional and elite amateur athletes and other experts in the area of nutrition and exercise. In addition, Endurance News will include articles highlighting new and existing Hammer Nutrition products and how to get the maximum benefits from them.

In reading this and future issues, please remember that the views expressed in this publication will always be biased in favor of a healthy diet, hard training that emphasizes quality over quantity, and prudent supplementation to improve health and performance. But above all, we at Endurance News believe there are no short cuts, and success can only come from hard work.

Back issues are available at www.hammernutrition.com

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me that anyone would do business with companies that behave like this. But, it's out of my hands, so we'll just keep doing what we've been doing and trust that you'll continue to support our efforts.

Our business practices are not the only thing that puts us in the minority. Our reasoned and scientifically backed positions on sodium, hydration, and caloric intake are usually at odds with fad articles in the magazines and what self proclaimed "experts" advocate. To put it bluntly, we are advocating less of all three. I am fully aware that some of us would like to believe the "more is better" crowd when it comes to dietary salt and sugar intake because it allows us to justify our affinity for and habits of consuming too much salt and sugar. Hammer's position, on the other hand, may be seen as "less fun" because we want you to abstain as much as possible from highly salted foods and refined sugar. Massively reducing your dietary salt and sugar intake is the easiest and cheapest way to improve your performance and your health, especially in the heat. I wish I could make it more sexy or more of a mystery, but I can't. High sodium diets lead to high perspiration rates, excessive mineral losses, cramping, and worse. If you really want to be able to handle the heat in training and on the big race day, **REDUCE** your dietary salt intake! There's the million dollar secret, for free. Once you get a handle on your salt and sugar intake, it's time to work on reducing your wheat intake, replacing it with more rice and whole grains. Finally, reduce your dairy intake to a few ounces a day of raw/organic milk or cheese and you'll be setting PR's right and left, you'll

feel better, and you'll be minus those last 5-10 pounds that just never seem to want to come off. Trendy or not, we have always and will always advocate a whole foods-based diet and a minimalist approach to fueling before and during exercise.

Hydration is yet another area where we tend to be swimming upstream, pun intended. While most advocate drinking freely while exercising, they make no mention of adequate hydration levels in your daily life. We, on the other hand, advocate just the opposite, not to be contrary, but because it only makes sense - living in a state of constant dehydration and then trying to super hydrate in the few days leading up to an event, or just during the event, is illogical. Maintaining adequate fluid levels in the body at all times and hydrating in moderation during exercise is just common sense. How much you should consume in each case is also not a mystery and is not very hard to figure out. For your daily life, you want to consume around 1/2 ounce of water per pound of body weight everyday (e.g. a 160-pound athlete should consume 80 ounces of water per day). Coffee and other beverages do not count. What you consume during training also does not count. Lightly steeped tea, on the other hand can be counted. When exercising, no matter how hot and/or humid it gets, 24-28 ounces per hour is the upper limit, and in the case of smaller athletes and cooler temps, the level of intake can and should be reduced from there. A strong word of caution : If you have been consuming far less than 1/2 of your body weight in ounces of water, you should not suddenly and dramatically increase your water intake. This will result in premature elimination of critical minerals. To get from where

you are now to where you want to be, increase your water intake by only around 20-25% per week. If you are at 30 ounces per day now and want to get to 80, go to 40 for a week, then 50 for a week, then 60 for a week, and so on until you reach your goal. So no, hydration is not really a mystery either, but the correct approach is not always the most popular because, much to my surprise, many of you don't like to drink water at all. Again, you may not "like" to drink lots of water all day, every day, but the rewards are huge and it's another really cheap way to drastically improve your performance and health.

As a client commented recently, we do actually take your feedback seriously and we do honor your requests whenever possible. One thing that has been annoying you and me is the half full containers of HEED, Recoverite, Sustained Energy, and Perpetuem. Despite what some have suggested, the containers do contain the correct number of servings and no one is getting shorted, it's just wasteful. Believe it or not, the containers are full to the brim at the time they are manufactured. However, the fine powder and all of the gravitational pull on the containers as they are being transported from Wisconsin to Montana and then to your door causes this extreme amount of settling to occur. Despite this obstacle, we are currently testing new inline agitators and other methods of "pre-settling" the powders so they can be put into smaller containers. This is going well and we expect to be able to reduce the container sizes soon. However, the ultimate goal is to get away from the stiff high-density polyethylene containers and go to large envelope or pouch style bags. These will have almost no wasted space and are much easier to recycle. We hope to be switching over to these by early to mid 2010.

By now many of you have noticed that we reformulated the espresso flavor of Hammer Gel. Of course, some like it better and some like it less. No one, myself included, is happy about the increased viscosity. Please be aware that this change was necessitated primarily by food safety concerns. Once we installed a new PH monitor on our production line, we noted that the ph level of the chocolate and

Buster!

We could not resist publishing this photo of Buster and his Perpetuem container. His owner, Mike, says that once the container is empty Buster likes the sound the scoop makes when it rattles around inside. He sure looks happy to us!

Note : A variety of studies have shown that Xylitol may be unsafe for consumption by dogs; therefore, we do not recommend you feed your dog any xylitol-containing products, including HEED or Recoverite, nor any products that are made for human consumption.



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*Bikes stand at the ready during the 24 Hours Round the Clock.
Photo - Jason Keister*

From the Saddle of Steve Born

Author : Steve Born

Welcome to the summer edition of Endurance News! Well, it took a long, long time but it appears that more consistent warm weather has finally arrived in Northwest Montana. And that's just fine with me. You see, as great as the Hammer cold-weather clothing is, commuting to and from work on the bike while wearing several layers of clothing—including a Hammer thermal jacket or vest—was getting v-e-r-y old. In fact, as I write this column today (June 3rd) I occasionally look outside my office window, taking notice of what may be one of the nicest days we've had in the Flathead Valley in a long time. No wonder my bike was telling me, "What the... what are you doing, man? Don't turn left into the driveway and go to work! Let's keep riding!" (Of course, I did make the left turn, parked my bike, took a quick shower, and went into my office and started working).

Still, as much as I'd like to be out there on my bike today, it is nice to be able to ride more frequently in warmer weather and I'm enjoying the fact that as I round into better fitness, I am becoming less "round" at the same time. I've never been, and probably never will be, the lightest guy on a bike but I have to admit it really feels good to have shed a couple pounds of "winter insulation." Additionally, I am rediscovering just how much I love to ride my bike. It wasn't always the case when I was still competing in ultra distance events; sometimes training felt more like work than fun. However, now that my primary

goal isn't to win Furnace Creek or something like that, but rather to simply get into decent enough shape so I don't suffer too badly on the Highline Hammer <grin>, the pleasures of riding a bike are even greater now.

I guess what I'm saying is that I hope that whatever it is that you're doing athletic-wise, you're having as good a time as I am, if not more so!

24 Hours Round the Clock

I think you'll really enjoy Brian's account of Hammer Nutrition's team efforts in this year's race. It was a great experience for me as well and also a bit different than what I'm normally accustomed to because I was there in a dual-purpose capacity: (1) Helping other athletes during the race while also sampling/promoting the Hammer products, and (2) Lending support to Brian, Dustin, Jason, and Matt whenever they needed it. I was flattered to be asked to be a part of the team, but since my mountain biking experience is extremely limited, with more crashes on downhill sections than I'd like to admit, I felt that I would be more of a liability than an asset to the team. As Brian mentions in his recap of the event, I opted to go in a supportive role capacity, which was fine with me. The guys did awesome and I'm definitely inspired by their accomplishment and what they went through to achieve it.

I had been to this race a couple of times before representing Hammer Nutrition, the last time being in 2005 (I believe), and I found myself going through a bit

of déjà vu during this year's race. The conditions leading up to and during this year's race were similar-to-identical to the first time I went: temperatures in the weeks leading up to the race were cool-to-cold, then on race day they're suddenly increased by 20-25 degrees or more. In '05 I remember being a bit uncomfortable just hanging out in the booth, that's how unacclimated I was, and I thought to myself, "Man, it's going to be rough going for everyone who's doing the race, especially the solo riders." What surprised me was that a good many of the riders blasted away as soon as the gun went off like it was business as usual. After watching an awful lot of them come through the start/finish line with very fast times on their initial couple of laps (especially considering the weather conditions), I started thinking, "Either they've had the chance to do some hot-weather training or they're just not riding very smart. If it's the latter I'm betting a good number of them won't make it to sundown." Sure enough, the weather had the upper hand that day, as there were a lot of DNF's long, long before the 24-hour period had been completed.

Now, in this year's race I didn't keep track of how many riders were dropping out, but I did notice—as Brian mentions in his article—that an awful lot of riders were suffering, some pretty mightily and within just the first couple of hours after the race had begun. Since our trailer was alongside the course, right near the start/finish line, a number of the solo riders would literally stop and say something to the effect of, "I'm dying out here. What am I doing wrong and what can I take to help?" Several of the riders' crew members would also come by and say things such as, "My rider is cramping like crazy out there. What do you recommend?" or "My rider isn't feeling

see STEVE on page 5

STEVE from page 4

good at all; he (or she) is complaining of stomach problems. What are we doing wrong? What should we be doing?"

Of course, I was glad to offer my advice and provide the riders and/or their support crew members with the products they needed to get them back on track. I have to admit, however, that with so many riders needing help, I felt as though I was a MASH doctor doing triage on scores of patients (or something to that effect... you know what I mean). This continued for several hours, well into the night and into the second day, in fact. After the race was over, many of the riders and/or their crew members came over to thank us for having the products available to them, and also for the advice that I had given them. I was, of course, very pleased to be able to help them and was most appreciative for the positive feedback. I also took the opportunity to make a few mental notes of what I felt were the most common mistakes that most of these athletes were making:

- They didn't respect the weather, meaning that they didn't adjust their pace in deference to the weather and the fact that it was a lot warmer than they probably had been training in during the weeks prior to the race. In my opinion, if you haven't had the opportunity to acclimatize to the weather conditions you have to adjust your pace accordingly... it just can't be "business as usual" when it's hot outside.
- They were consuming simple sugar-based fuels or eating sugar- or fat-filled foods, both of which led to stomach issues.
- They were consuming too many calories in general, which also led to stomach issues.
- They were over-hydrating. Some of the riders were consuming outrageous amounts of fluids or sports drinks, which not only caused a whole lot of stomach distress and discomfort, it also created cramping issues from dilutional hyponatremia.
- They were either using salt tablets alone, or nothing at all, to fulfill electrolyte requirements.

The last one is worthy of a few additional comments. You see, after 9+ years here at Hammer Nutrition I have noted that electrolyte replenishment, an undeniably vital component of fueling (along with calories and fluids), is the one area that athletes tend to botch the most (trust me, I know from personal experience). I am in 100% agreement with what Brian says in his article: "High sodium diets lead to high perspiration rates, excessive mineral losses, cramping, and worse. If you really want to be able to handle the heat in training and on the

to anions are managed in the energy-producing cell—assuming the cell has adequate fuel and fluid—such a cell will produce energy at a higher rate than one overdosed by a single cation mixed with an irrational list of anions." I'm convinced that if more athletes would take those words to heart, follow a lower-sodium diet, and use Endurolytes to fulfill electrolyte requirements, they'd have far less problems during their races, especially ones contested in hot weather.

Events, events, and more events!

Summer, of course, is our busiest time of the year in terms of sponsored events and 2009 looks like it'll be a record-breaking year for us. It's also the time I do the most traveling for the company. In fact, by the time you read this I'll have returned from several trips for Hammer Nutrition. First up is the VikingMan Triathlon in Burley, Idaho, followed the next weekend by the Battle at Midway Triathlon in Midway, Utah. I have no travel the next week, which is good because the following weekend is the Pacific Crest Weekend Sports Festival in Sunriver, Oregon, the biggest, most heavily attended event that I go to annually. Aside from the travel to and

from the events (which can get old at times), I really do enjoy attending them, especially because I get to meet some of you.

Check out the article on page 38 that lists our upcoming July and August events. I hope to see you at some of the races we sponsor and I wish you continued success this season. Thanks for being such valued clients!



Hammer sponsored athlete, Rebecca Rusch, and I spend time visiting at the booth during the 24 Hours Round the Clock.
Photo - Brian Frank

big race day, REDUCE your dietary salt intake!" I also believe that while salt (sodium chloride) is indeed an important component of electrolyte replenishment, it's not the whole story and that too much can lead to as many negative consequences as not enough.

Dr. Bill once wrote, "The electrolyte profile of Endurolytes balances cations (positively charged ions) and anions (negatively charged ions) responsibly without emphasizing one electrolyte over others. When a balance of cations



Brendan Halpin and Scott Gaiser make their way out of Whitefish Lake during the Whitefish Lake Triathlon.
Photo - Angela Nock

Product Spotlight : Liquid Endurance

Your "go to" product when the heat is on

Author : Steve Born

Here in Montana we're finally getting into warmer weather, with the promise of hotter weather to come (yes, it does get hot in Montana, at least for a few weeks). Some of you, however, have been dealing with hot weather for many weeks now, and if you've not been using Liquid Endurance prior to your hot-weather races then you're missing out on a key—perhaps THE key—hot weather-specific ergogenic aid.

In hot conditions, especially beyond

a two-hour effort, your body's core temperature can increase dramatically. Your internal cooling system responds appropriately, producing copious sweat, but unlike your car's radiator, which recycles its coolant, your sweat evaporates and drips away, and it's gone. Obviously, rehydration is your basic strategy, but a well-planned dosing of Liquid Endurance when a hot-weather race is on tap can help keep you within safe limits.

Unreplenished fluid loss causes endurance athletes several problems:

- Your heart must work harder in order to pump a decreased, but thickened, blood volume
- Fluid depletion inside and outside muscle cells may slow down the metabolic reactions necessary for efficient muscle fuel transport
- Inadequate fluids result in higher cell temperatures altering metabolic rates for less-than-optimal endurance performance

At the very least, excess body fluid loss means premature fatigue and decreased performance. If the loss goes unchecked during extended exercise, the potential for dehydration and its serious consequences increases. Once you get into the dehydration range, you're cooked—literally and figuratively—collecting a DNF and possibly an IV, too. Liquid Endurance, along with prudent hydration, will address the two primary problems—fluid loss and fuel metabolism decline—that endurance athletes face when training or competing in hot conditions.

The Liquid Endurance formula

Glycerol is a physiologically well-tolerated, naturally produced metabolite of fatty-acid oxidation. It absorbs rapidly when taken with water or sports drinks, increasing the water content in blood, cells, and extracellular spaces. All three of these compartments contribute to sweat volume, resulting in a significant increase in cooling efficiency during prolonged exercise. As Dr. Bill writes, "A loading dose with glycerol and water during a taper packs more fluid into your body, which can be released for evaporative sweat cooling."



How to use Liquid Endurance

Traditional Loading Dose: 1 Tbsp. Liquid Endurance per 100 lbs (approx 45 kg) of bodyweight mixed in 16-28 ounces (approx 475-830 ml) of water. Consume three times daily for three days prior to event. It is very important to weigh yourself each day. If you gain 3% or more of your bodyweight before the 3-day loading is finished, it is time to stop loading as water weight gain beyond 3% is performance-inhibiting (Note: most athletes gain 1-2%, which is the desired amount).

Daily Use: If you do wish to try Liquid Endurance prior to or during exercise, we suggest 1/2 to 1 Tbsp. per 21-24 ounce (approx 620-710 ml) bottle of water. Consume prior to exercise and, if desired, in each bottle of water or fuel during exercise.

Note : Liquid Endurance does not prevent heat stroke, hyponatremia, or any other dangerous physical conditions resulting from over exertion in extreme heat.

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LIQUID ENDURANCE from page 6

Glycerol is metabolized by the cells into a substance called dihydroxyacetone phosphate, which is a normal metabolite by-product found in the glucose-for-energy pathway. Glycerol also has an important role in the absorption of l-carnitine.

L-carnitine is a vitamin-like nutrient essential for the utilization of fatty acids for fuel. One nutrition scientist writes, "Carnitine absolutely controls fat use because it forms the transport system that moves the fatty acid molecules into the mitochondria (furnaces) of the cell where they are burned for energy." Inadequate l-carnitine inhibits your body's ability to convert fats into fuels.

If it weren't for the glycerol component in Liquid Endurance, the kidneys would filter out most of the l-carnitine before it could do much for you. However, glycerol reduces kidney filtration by redirecting fluids consumed into extracellular spaces. This allows the carnitine to circulate longer and therefore absorb better, so you get more of it to help convert fats to fuels.

The fats-to-fuel feature is especially important because during long, aerobic-paced endurance exercise, fatty acids fulfill the majority of energy requirements. The ability to efficiently use fats for fuel cannot be underestimated and being able to access those fatty acid stores will help extend precious muscle glycogen as well as body fluids. Glycogen metabolism releases a substantial amount of water. Increasing the efficiency of fatty-acid metabolism will both decrease water release and increase the amount of naturally produced glycerol. All of these factors prolong endurance.

Pyridoxine HCL (Vitamin B-6) – Vitamin B-6, an active compound in over 60 enzyme systems, plays a major role in the metabolism of all fuels, including fatty acids. Additionally, without sufficient supplies of vitamin B-6, the body cannot make l-carnitine and therefore it cannot access fatty acids efficiently, thus depleting the amount of glycerol produced.

Dr. Bill Misner writes, "A deficiency [of vitamin B-6] created during prolonged exercise may directly translate into poor

utilization of glycogen, amino acids, and fatty acids for producing continuous muscular energy. A trace amount of pyridoxine HCL keeps the energy pump primed with all the substrates and fuels needed for a prolonged endurance event."

Chromium polynicotinate –

Chromium plays an essential role in energy production and the synthesis of glucose, fatty acids, and amino acids. However, this trace mineral is rapidly depleted via perspiration, urination, and extreme temperatures, which is why we've included it (in the highly bioavailable polynicotinate form) in Liquid Endurance.

With Liquid Endurance, you get so much more than a "heat tolerance" product. You'll appreciate its benefits any time, but especially during hot weather races, when your cooling system is pushed to its limits.

FAQ

Q: Is it ok to use Liquid Endurance for long distance workouts or races on hot days without the loading doses... just a tablespoon or two with water before or during a workout or race? Also, if I've done a 3-day load, should I still use Liquid Endurance in my water bottles on the day of the event?

A: Dr. Bill writes: Glycerol fluid-loads interstitial spaces over a 72-hour period. However, if during that time period,

fluids are lost for evaporative cooling (sweat) or diuresis, the loading protocol will be less effective. You can observe this by measure of body weight gain of 2-3 lbs per 100 lbs total body weight as around a liter+ of fluid. This fluid is readied inside tissues for release over the first 90 minutes of the event. This fluid enables cooling, which keeps you hydrated slightly ahead of those in a hyperthermic race who did not glycerol load.

You can use glycerol (Liquid Endurance) during an event, but it will not regenerate fluids to interstitial spaces while fluids are being directed to evaporative cooling preference (heat). Glycerol acts as an energy source during exercise, but no different than your energy drink or gel source. If you do use Liquid Endurance with your fuel source, you may want to deduct the amount of calories per solution that Liquid Endurance will provide in order to not overdose calories per hour from what works in your metabolism typically in long training efforts.

Some athletes insist that on long, hot days they experience a benefit compared to when not taking glycerol. The research, however, does not establish any effects less than the 3-day loading protocol. You may try it nevertheless to see if you can tell a performance advantage. Always confirm compatibility race mix in training.

Beat the heat!

- Increase sweat for evaporative cooling
- Improve fat metabolism
- Lower heart rate

Extra Benefits:

Because glycerol increases the uptake and distribution of L-carnitine - a key nutrient in the burning of fats for fuel - at the cellular level, using Liquid Endurance may help support weight loss goals.

32 servings - \$23.95
3 or more - \$20.95 ea.

1.800.336.1977 / www.hammernutrition.com





Plant Foods for Performance

Author : Bill Misner, Ph.D.

The average American consumes only 4.4 servings of fruits and vegetables a day. Now, 4.4 servings are not enough since we should be eating between 7-9 servings daily. The National Cancer Institute and the National Institute of Health highly recommend 7 servings of fruits and vegetables for women and 9 servings for men because in the most common diet-related diseases—including heart disease and many types of cancer—eating more fruits and vegetables per day is proposed as a preventative measure. There are more than 1000 phytochemicals found in food sources. Food-transient chemicals act as antioxidants, phytoestrogens, enzyme aids, and serve in antibacterial fractions.

According to the American Heart Association and the National Cancer Institute (NCI), it is important to eat whole foods to get the maximum benefit of phytochemicals. Scientists report that phytochemicals work with the vitamins, minerals, and fiber in foods synergistically to protect against aging, heart disease, and cancer. Plant foods contain the highest ORAC antioxidant values. ORAC is short for Oxygen Radical Absorbance Capacity, and is a test tube analysis that measures the total antioxidant power of foods and other chemical substances. It was developed by scientists at the USDA (United States Department Of Agriculture), who discovered that a small group of "super foods" have up to twenty times the antioxidant power of

other foods.

Once we start to exercise, our bodies generate 1,200-2,000% more free radicals, measured in the blood as malondealdehyde content. At an aerobic pace, the human body can keep up with malondealdehyde production for 60-90 minutes, but then excess levels not only cause performance-inhibiting fatigue, the residue of free radical over-dose will cause damage to internal cellular

The average American consumes only 4.4 servings of fruit and vegetables a day.... we should be eating between 7-9 servings daily.

function. If the athlete consumes free radical-reducing plant foods, free radicals are neutralized rapidly, thus resolving the issue of replenishing endogenous antioxidant capacity with the idea that the next exercise session will be enhanced.

In studies, animals fed high-ORAC foods had lower biological ages as measured by memory, balance, and capillary strength. The correlation between optimal health and endurance performance enjoy several identical parallels. What intent exercise may do is induce a state of failure similar to the consequences induced by free radical excess exposure. Fatigue and lack of energy occur relative to the rate of free

radical exposure. Discipline in training should be employed at the training table in addition to what you did in the workout. Unless a calorie is accompanied by an antioxidant substance, subsequent metabolism will increase cellular damage until it is completely neutralized.

High antioxidant plant foods are the first choice to resolve free radicals. Some foods provide more antioxidant power than mega-doses of vitamin supplements. That said, while the best antioxidant properties come from whole plant foods for the post-exercise menu, supplementing with Premium Insurance Caps, Super Antioxidant, AO Booster, Phytomax, Mito Caps, and Race Caps Supreme will boost the antioxidant requirement for recovery from exercise.

Examples of a vegetable serving are 1/2 baked sweet potato, 3/4 cup tomato juice, 1 cup of leafy greens (raw), 1 ear of corn, 1 Roma tomato, 4 slices of onion, 5 broccoli florets, 10 baby carrots. Examples of fruit servings are 1 banana, 1 apple, 1 peach, 2 plums, 6 strawberries, 15 grapes, or 1/2 cup of fruit juice.

A complete list of the highest antioxidant foods is quoted in chapter 11 of "What Should I Eat? A Food-Endowed Prescription For Well Being" at: <http://www.lulu.com/content/paperback-book/4358066> or <http://oracvalues.com>.

WELCOME from page 3

espresso was too low. Normally this would be corrected by adding citric acid, but that does not work with a chocolate flavor. Adding preservatives or other chemicals to alter the PH are simply not options for us. So, if you do not like the taste of the reformulated chocolate or espresso, I am sorry, but we cannot go back to the old formula. We have had many more athletes comment that they like the new flavors better, but we know that we'll never please everyone. If the only complaint is the increased viscosity, then that is easily remedied - you simply put 4 servings in your flask with 1 serving of water - shake and voilà - thinned out chocolate or espresso. You can't do that with the pouches, obviously, but then again, you shouldn't be using the pouches anyway.

Speaking of taste, there are many of you who feel that some of the flavors of our products taste subpar. We hear complaints and see plenty on other blogs and use groups about Perpetuem (orange-vanilla), Recoverite (citrus), and HEED (lemon-lime and mandarin orange). I'd like to speak to those people for just a minute. You often refer to competitor's products when complaining that ours don't taste very good or ask why ours don't taste like this or that company's products. The answer is that their products contain refined sugars, artificial sweeteners, and/or artificial

flavors, and ours do not. Let me re-state this: we have a self-imposed company policy that forbids us to use ANY refined sugars (sucrose, glucose, dextrose, fructose, etc.), artificial sweeteners, artificial colors, or unnatural ingredients in the formulation of any of our products. That really complicates things when you want them to taste sweet and yummy. Personally, I think we do very good job of avoiding toxic ingredients while still delivering good tasting products and we are getting better as evidenced by the new caffè latte Perpetuem, strawberry Recoverite, and cashew coconut chocolate chip Hammer Bars.

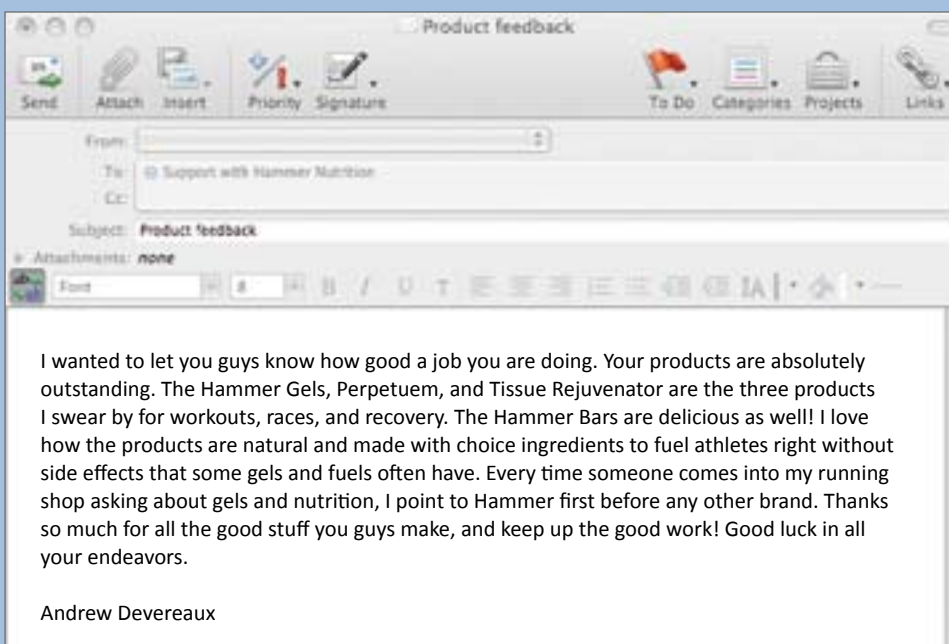
Another Hammer Gel flavor I'd like to mention is tropical. If you have not "retried" the tropical flavor in the past few months, you really should. We modified it so that the bitter finishing/aftertaste is gone. Now, it's just smooth tropical goodness. It's my new favorite by a long shot.

So, enjoy your summer and all of the cheap and easy advice this issue contains. Whenever you are uncertain about a fueling issues just remember that less is best. Keep that feedback coming and, of course, we'd love to get your race report or Hammer story for our next issue.

Brian Frank
Proprietor

A Note About Our Packaging

We are making a slight change to our packaging and wanted to alert you. Historically, we have used clear plastic outer seal around the lid of our multi-serving powder containers (i.e. HEED, Perpetuem, Sustained Energy, Recoverite, Whey, and Soy). It has consistently proven to be unreliable and problematic due to the shape of the container. As a result, we've made the choice to discontinue the use of this non-biodegradable outer seal. The round, inner foil seal that is adhered to the container opening underneath the lid will continue to preserve the integrity of the product, assuring you that your Hammer Nutrition fuels are completely safe.



This testimonial was unsolicited and has not been modified.

Andrew,

We appreciate the encouraging feedback. As our way of saying "thanks" for pointing your athletes in our direction, we're sending you a bottle of Tissue Rejuvenator for free. Keep up the good work yourself!

The Hammer
Nutrition
Team



120 capsules - \$24.95

ENDURANCE SUPPLEMENTS



Chip Hoover, placing second in the recent US Air Force Cycling Classic (formerly the CSC Classic) in the Cat 1/2/3 race.
Photo - Joe Mallis Photography

Low-Sodium Diet = Less Sodium Lost During Exercise

Author : Steve Born

We received a lot of feedback—most positive, some not-so-positive—regarding our comments on the press release from the American Heart Association (“American Heart Association supports lower sodium limits for most Americans”). In a nutshell, the AHA “recommends that most people strive to lower the amount of sodium consumed daily to less than 1,500 mg, to prevent or manage high blood pressure, a major but modifiable risk factor for heart attack and stroke.” The question is: Does this recommendation apply to athletes or is it limited to sedentary people? And does a low-sodium diet help or inhibit athletic performance?

Dr. Bill Misner comments:

It is our observation over the years that athletes who consume above 3 grams (3000 mg) of sodium per day tend to require more sodium during an event than those athletes whose sodium intake is 2 grams (2000 mg) or less per day. Furthermore...

- Athletes with a high Body Mass Index (BMI)
- Athletes with a high body fat percentage
- Athletes whose acclimatization training is inadequate

• Athletes whose fitness is inadequate for pace imposed

... all increase the risk of sodium depletion state in hyperthermic (hot weather) conditions. I agree that fluid overload and sodium underdose in hyperthermic conditions is a medical emergency. However, pre-event sodium intake in anticipation of a sodium-depletion event must

Prolonged dietary sodium overdose compromises health and, in our observation, performance in those athletes so inclined.

be carefully orchestrated. I do not recommend hyper-dosage of sodium-rich substances during sedentary state to resolve exercise-induced sodium depletion. Sodium depletion can be anticipated by modest pre-race supplementation of Race Day Boost, Liquid Endurance, or, just prior to the event, Endurolytes.

Prolonged dietary sodium overdose compromises health and, in our observation, performance in those athletes so inclined. I have no record of any athlete whose diet consumed during the days before an endurance event was too low in daily intake of sodium. I do have evidence from many athletes whose dietary practice of excess sodium intake

were problematic, compromising performance due to the sudden change that sodium loss presented.

We must not put an athlete into the throes of hyponatremia, nor must we advise athletes to chronically load sodium as a preventative measure for sodium losses anticipated, outside of responsible preventative intakes herein advised. I have been advising weighing before and after events for years as a measure of hydration adequacy. We also have recommended post-event Complete Blood Count (CBC) serum sampling to resolve electrolyte-depletion issues. Combined, these two assessments confirm our position for electrolyte and fluid balance for the optimum safety and performance outcome.

Dr. Misner's comments/recommendations reflect the same philosophy we have been promoting at Hammer Nutrition for many years via a number of our knowledge resources:

"Does a High Sodium Diet Inhibit Endurance Performance and Health?"

<http://www.hammernutrition.com/za/HNT?PAGE=ARTICLE&ARTICLE.ID=4892>

"Solutions for Endurance Performance"

http://www.hammernutrition.com/downloads/solutions_performance.pdf

see SODIUM on page 11

SODIUM from page 10

"The Endurolytes Rationale"

<http://www.hammernutrition.com/za/HNT?PAGE=ARTICLE&ARTICLE.ID=770>

"Hypothermia vs. Performance"

<http://www.hammernutrition.com/za/HNT?PAGE=ARTICLE&ARTICLE.ID=782>

"Hydration - What you need to know"

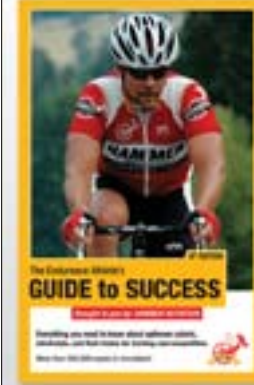
<http://www.hammernutrition.com/za/HNT?PAGE=ARTICLE&ARTICLE.ID=299>

We have no doubt that lowering your sodium intake in the diet will positively affect your athletic performance as well as your overall health. As we have mentioned over and over, the body is very adept at storing sufficient amounts of sodium so you will start your workouts and races with plenty of sodium "on

board" and ready to serve you. The difference is that, unlike people who consume a high-sodium diet, an athlete who adopts a low-sodium diet will not lose sodium at the same high rates; it will utilize those stores more efficiently and conserve them more thoroughly. In the words of Dr. Misner, "Evidence supports limiting sodium intake during rest and exercise. The harmful effect of more chronic sodium over-dose above the body's daily need is a real and present danger to compromise optimal health. Tight chemical messengers and hormones help the body to spare serum sodium loss."

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ENDURANCE FUELS

The Everest Challenge brain trust (!) was out at the Bishop High Sierra Trail Runs last weekend mixing bottles and the like. Here's a Hammer success story for you... it seems like there is at least one at every event. And that's just the ones I see.

100km trail run. 90 - 95 degrees, Aid Station, 48.5 miles into it. The runners are arriving in various states of ragged. You know, overheated and ragged, bonked and ragged, dehydrated and ragged. Guy rolls up with two 20 oz. hand bottles. "Got Perpetuem?" Yep. "Water in one bottle, four scoops in the other." Hey, this guy could mix my bike bottles! Another guy wants to know what's the deal. I explain about fuel and concentrated mixes and stuff. Guy with the bottles is eating a banana right then. Other guy says it's too thick, never gonna mix. I shake it a couple of times, and show him the bottom of the bottle. Clean. The two guys take off for their 12-mile loop. Tough loop, too.

Race Director laughed when she told us the day before to expect complaints. Runners were REALLY ragged coming in from the loop. Bottle guy looked great. Didn't stop on the way by, just waved and hollered back to us "Thanks for being out here!" and steamed toward the finish. Other guy came in looking wasted about two hours later. Sat a little, ate some soup. Finally got up the energy to head for the finish. He still looked rough. Asked when the guy with the bottles had come through. When I told him, he just shook his head and stood there looking at the ground. Last thing he said before he left: "What was that stuff again? I think I need to get some for my next race."

Perpetuem. It. Really. Works.

Steven Barnes
Everest Challenge Race Director

This testimonial was unsolicited and has not been modified.



Eat Food

Author : Bill Nicolai

A review of two important books that give remarkable insight on the subject of food from very different perspectives, yet ultimately come to exactly the same conclusion:

IN DEFENSE OF FOOD, An eater's manifesto: by Michael Pollan (The Penguin Press, 2008)

WHAT SHOULD I EAT? A food endowed prescription for well being: by Bill Misner Ph. D, (www.lulu.com ID# 4358066)

So, why do I title this article with a simple imperative to my readers to eat food? Doesn't everyone eat food? You cannot live without doing so. Yes, food is necessary for life and you cannot live without food; but much of what people eat is actually not food. In fact, much of what most people eat is poisonous and is causing them to become sick and die. I do not make this assertion lightly; it is hardly a trivial matter, and the combination of eating poisonous substances and failing to eat real food is arguably a greater current danger to human life and personal happiness than other more popular concerns such as war, social disintegration, and economic chaos.

In this article I'm defining food as the living things we eat that bring health and life. Both the authors believe that the principal components of the "normal" western diet are really abnormal when looked at from a scientific viewpoint (Misner) or in a cultural context (Pollan)

and are actually not sufficient to support healthy human life.

Interestingly, though most people think they know what food is, they do not, and instead of eating food they consume something else; they eat stuff one of the authors (Pollan) terms "edible food-like substances." Consumption of this material, which is not food, is believed by both authors to be the cause of most illness and while one may live for a while on it, consumption of non-food will result in a much lower quality of life and greatly increase the likelihood of disease, as opposed to eating real food. One of the authors (Misner) documents in great detail the effects of consumption of non-food materials and the relationship of such consumption to disease and death. Both authors go on to give good guidance on what one should eat and make persuasive arguments in support of their assertions.

This subject is poorly understood, not just by lay people, but also by the people who we believe should know, namely nutritionists and health care professionals. The issue on what to eat is so poorly understood that most people are physically suffering from the consequences of this lack of knowledge and will benefit greatly from knowing more about what food really is and how to choose it from among the many faux-food items they are presented with in their daily lives.

In his book Michael Pollan describes in great detail how the substances most of us eat are not at all what humans were consuming in prehistoric times

and throughout known history up until the last few generations, that the things that people now eat are mostly artificial and imitation manufactured products that are produced for the purpose of earning their sellers a profit and not for providing proper sustenance to those who consume the stuff they sell. The consumers of this non-food eat it because they do not know it is not actually food and they suffer the malnutrition that results. He tells us the reason that people have come to this situation is a cultural phenomenon and that it is pervasive.

At the heart of this great misunderstanding is the confusion that most of us have regarding what food is. In the last hundred years the majority of people have come to believe that the essence of food are its chemical constituents, which are termed nutrients. In this construct there are macro-nutrients, which are three groups of chemicals called carbohydrates, proteins, and fats. In addition, there are known essential micro-nutrients such as vitamins and minerals. This idea of food as a collection of chemical compounds has largely replaced an older concept of food which was that it is actual living matter; parts of plants and animals such as leaves, fruit, roots, seeds, nuts, and the flesh of animals.

Until fairly recently, humans, like every other animal on earth, used this older concept when selecting food to eat. But currently people believe that if they consume substances that contain nutrients, then they are getting the nutritional equivalent of what is contained in plants and animals and they do not have to bother with the inconvenience of seeking and obtaining actual living things to consume. But it is obvious to anyone who bothers to

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observe that higher forms of life come from living things, not chemicals. Most creatures know this and will not eat the manufactured stuff humans consume and therefore they do not suffer the diseases we do. In fact, the undesirability of the stuff humans make is a significant part of its commercial value, other organisms often will not compete with us for it, it is worthless to them, which is why it lasts so long. It is the result of ignorant people accepting a misunderstanding of science that is willfully exploited by the food processing industry that has created this unhappy turn of events.

Michael Pollan tells us that this belief that one can obtain the essence of real food by consuming its constituent chemicals is not true, but is actually a false ideology that he calls nutritionism. He explains that this idea is believed by most people and they are assured by their parents, peers, the government, the food processing industry, the retail distribution chain, and the scientific community that if they consume the constituent chemicals of real food that they are getting its essence. He explains that this is an egregiously mistaken belief and that food is actually much more than the known chemical constituents and that actual living material must be consumed in order to receive proper nourishment.

According to the tenants of nutritionism, there is no essential nutritional difference between a tootsie pop and a cherry. They both get the calories they contain from a carbohydrate called fructose. If you cannot conceive that there might be a vast difference in the result of consuming most of your nutrition from things like tootsie pops instead of things like cherries, then you are hopelessly caught up in the ideology of nutritionism and are going to have difficulty in understanding what these authors are describing.

Dr. Bill Misner takes a very different and rigorously scientific approach to discussing the perils and benefits of the food choices one makes. Though trained in nutrition science, he is not a follower who proceeds on the basis of nutritionist ideology, but he lets the evidence lead him to his conclusions. He talks at length about what is known

about nutrients and their effect on the human energy production systems and the prevention of disease. He has done an exhaustive review of scientific literature on the effect of consuming different foods and shares the highly detailed results of his meta-review in the field with the reader. Dr. Misner demonstrates that there is a positive correlation to heart disease in consuming certain food types such as meat, sugar, and milk and a negative correlation with others, such as fish, vegetables, and cereals. He also does an exhaustive review of the relationships of different foods and nutrients to cancer, heart disease, diabetes, Alzheimer's disease, and other common ailments. His studies describe the specific results of consuming particular foods and the effect on health.

Dr. Misner explains the free-radical theory of illness and discusses the anti-oxidant properties of specific food groups and individual foods. He also discusses at length the issues of obtaining sufficient micronutrients in order to obtain optimum health and makes a

the best diet consists primarily of fresh, organic vegetables and a moderate amount of carefully chosen animal protein, especially certain fishes. This is exactly the same conclusion arrived at by Michael Pollan. There are some minor differences in the specifics of their conclusions but on the whole, they come to the same conclusion: Eat a mostly vegetarian diet with a modest amount of animal protein. Do not consume manufactured foods and avoid the cheap, commonly available diet that is the norm for most Americans. Both authors also conclude that the effects of this approach to eating are far more profound than the so-called health care industry admits. Dr. Misner asserts that it takes about 40 days to totally revitalize one's health by consuming the proper foods. Interestingly, in his review, Michael Pollan cites an example of an experiment conducted among civilized Australian aborigines who had left the bush and were suffering from the normal diseases of diabetes, high blood pressure, and heart disease that results from a conventional diet

The issue on what to eat is so poorly understood that most people are physically suffering from the consequences of this lack of knowledge and will benefit greatly from knowing more about what food really is...

detailed and persuasive case for avoiding unhealthful omega-6 fats and consuming healthful omega-3 fats. A particularly important contribution that Dr. Misner makes is to demonstrate conclusively that the common statement, "You can get all the vitamins and other essential nutrients you need from a well balanced diet of natural foods" is false. He shows how the vitamin content of currently produced foods is not sufficient to avoid the effects of deficiency, especially among persons like athletes who consume very large amounts of energy from the food they eat and therefore need to supplement their diet with specific additional nutrients for optimal health. And though he investigates the details of nutrition in a reductionist manner, his conclusion is the opposite of the beliefs of nutritionism.

In the end, Dr. Misner concludes that

of civilized people. In an experiment, these natives returned to the wilds and in only seven weeks (49 days!) they totally eliminated their sicknesses by re-adopting their aboriginal hunting and foraging ways. Contrast this result with the absurd current implied proposition of the food industry enabled by the medical profession and drug industries: that you can eat all the hamburgers, milk shakes, and french fries you want and control the resulting sickness with a pharmacopoeia of expensive prescription drugs for the rest of your (shortened, disease-ridden, and miserable) life.

Let's assume for the moment that you have read these two books and agree with the proposition therein; this begs the question of just how do you actually find the suggested natural foods and

see FOOD on page 15

We would like to extend our gratitude to active members of the military by offering discounted Hammer Nutrition product. For those servicemen and women stationed overseas, we are offering a 40% discount. For those military members currently stationed in the U.S., we are offering a 20% discount. Now is the time to stock up on Hammer products.

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If your address is not a base address we ask that you fax a copy of your military ID to us.

I just wanted to give Hammer a quick update on my racing. The Army has decided to send me to Afghanistan, so my race schedule got severely derailed this year. However, my Hammer products have proven very useful in my train-up. The weather here during training has been pretty hot at times, and I routinely have to spend all day walking and running around in over 50 lbs. of body armor and equipment. My HEED has become invaluable in my ability to stay hydrated and prevent cramping on long marches and movements. Additionally, I have found that my Recoverite has been equally as effective at recovery from training as it is after long run and bike workouts. The most important piece of nutrition, though, has been my Hammer Bars. Since I'm not a huge fan of the Meals Ready to Eat that the Army likes to pass out, my Chocolate Chip Hammer Bars have been my lunch and dinner on more than one occasion. Additionally, a handful of guys on my Provincial Reconstruction Team seem to always swing by my bunk looking for a bar to take out to training. On 29 May I finally was able to take part in a race, a local 5K, and made sure I represented Hammer well. Even though I'm not in race shape, I won the race in 17:40 with ease. Thanks again for all of your support. Your products continue to allow me to perform at a top level. - Ian Murray

The image displays three Hammer Bars stacked vertically. Each bar is wrapped in a dark, textured material with a yellow and red design. The top bar is 'Almond Raisin', the middle is 'Chocolate Chip', and the bottom is 'Cashew Coconut Chocolate Chip'. Each wrapper features the 'HAMMER BAR' logo, a small graphic of a hammer, and nutritional information. The text on the wrappers includes '24g PROTEIN', '14g FIBER', '90% RAW', 'NON-GMO', 'ALKALINE FORMULA', and 'Cool your body right!'. A small disclaimer at the bottom of the image reads: '©2014 Hammer Nutrition. All rights reserved. Hammer Nutrition is a registered trademark of Hammer Nutrition, Inc. All other trademarks are the property of their respective owners.'

*Angela, thanks for the note!
We've put a credit on your
account for a free box of bars.
Enjoy!*

The Hammer Nutrition Team



50 gram bar \$2.49
12 count box \$27.00

ENDURANCE FUELS

Sincerely –
Angela 'Coco' Cocozzella

This testimonial was unsolicited and has not been modified.

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then make them an integral part of your life. Michael Pollan gives some good guidance on how to obtain food. He suggests that you shop at stores offering organic produce, go to local farmers markets, and avoid packaged and processed foods altogether. Dr. Misner suggests that controlling caloric intake is necessary and Michael Pollan also recommends not eating too much.

My own experience is that when I eat the recommended foods I have no trouble controlling the amount that I consume. In the last several years I have increasingly adopted the diet recommended by these authors and consume the supplements recommended by Dr. Misner as well. In this time I have lost about ten pounds and significantly improved my athletic performance. As an athlete who trains about 20 hours a week, I supplement my

diet while training with fuels provided by Hammer Nutrition. Though these items are not natural, whole foods, they do not contain improper chemical ingredients and work well in providing the additional fuel that I need while training. In the many years that I have known Brian Frank, owner of Hammer Nutrition, he has always asserted that your primary nutrition should come from food as described by these authors and that fuels for training are specifically for use while training or racing and not a substitute for a varied diet of natural, whole foods. When not actually working out, my diet is pretty much as recommended by the authors.

So, I have managed to change my diet to conform to their recommendations and consequently my whole family is experiencing the benefits in our health and fitness: you can too. It is possible and not unduly difficult to achieve; you needn't take as long as I did to make these changes. My methods to

accomplish this are listed in the table at the bottom of this page.

The essence of my method is to control what I eat and when doing so I find it is not necessary to think about how much I am eating. Being a bit of a hedonist by nature, I seek maximum flavor in my cooking and very much enjoy my food while I'm preparing and eating it but I just don't seem to want too much of these healthful foods. It appears to be difficult to eat excessive amounts of whole, natural, live foods; at least it is for me.

So, in conclusion, these two authors have done us a great service in giving us the information we need to make proper food choices for maximum health and energy. With mindful attention, it is possible to follow their suggestions for eating and when you do you are going to experience a remarkable increase in health and vitality. Bon appetite!

Making good food choices

- Choose food that is recognizable as actual parts of plants and animals. Look to assure that there are things like leaves, actual fruit, and plant materials in most everything you consume. Any fish or meat must have the appearance of actual animal flesh, i.e. bones, blood, veins, etc.
- Wherever possible, choose organic and local produce.
- Don't buy stuff with bar codes on it.
- When consuming grains and seeds, avoid the highly processed types and go for the less processed varieties like brown rice, whole nuts, and coarse ground grains.
- Just because you are an athlete does not mean you should consume unusual amounts of carbohydrates. As Dr. Misner points out, only 1% of your body is composed of carbohydrate. Excess amounts consumed become unneeded fat.
- When eating foods containing concentrated carbohydrate, choose foods that also have other nutrients like whole grains and fruits.
- Limit or eliminate all high glycemic index white flour/white rice products and instead

consume low glycemic index starches such as sweet potatoes, barley, kamut, quinoa, brown rice, and the like. These "exotic" starches have tasty flavors and avoid the insulin spike occasioned by the more common starches.

- If you buy processed foods, examine the labels for what is contained and reject products that have anything other than food in them. For example, the label of the peanut butter I eat says "Contains: peanuts" and there is nothing else listed.
- Don't buy or consume foods that will not rot fairly quickly, within a week or so. Root vegetables are an exception and can last a couple of months in a cool place.
- Eat lots of leaves and shoots like spinach, asparagus, and broccolini.
- Drink mostly water.
- Eliminate or strictly minimize alcoholic beverages.
- Avoid milk products except for whey.
- Use pepper, spices, and curry for flavor instead of salt.

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Fluoride Toxicity

How much is too much?

Author : Bill Misner, Ph.D.

Prefatory comments: In Endurance News #62 we ran an article entitled "Flouride/ Flouridated Water – Controversial substance and topic." Turns out that the word "controversial" was quite appropriate because we received an awful lot of feedback on that article, with a fair amount of it being negative. In fact, some were in such disagreement with our viewpoints that they opted to no longer be clients of Hammer Nutrition. While we are never happy at the prospect of losing a customer, and realize that not everyone will agree with our position on all topics (and it's OK if you don't), we won't allow that to alter our position on subject matter that we feel strongly about, nor will it persuade us to "sugar coat" the information.

With that said, we present this follow-up article that we hope will explain our position on fluoride/fluoridation more clearly and in greater detail, with referenced research to back up our comments. We trust that you will find the information to be, at the very least, thought provoking and interesting.

Some is good – Fluoride for dental health

Generally, fluoride's only health benefits occur when it is applied topically to the teeth. Oral supplementation is not recommended. No human disease has ever been linked with a fluoride deficiency. Fluoride counteracts tooth

decay by inhibiting the demineralization of tooth enamel by strengthening it and by inhibiting the ability of detrimental bacteria to destroy it. Systematically, fluoride improves the resistance of tooth enamel by forming a strong, calcium-bonded coating.

Excess fluoride may compromise health. The following fluoride daily exposure dose illustrates the fact that fluoridation of water may produce toxicity at relatively low levels: Sources of fluoride come from processed foods, pesticide residues, fluoridated dental products, mechanically de-boned meat, airpollution, cabbage, bananas, cornsilk, and tea. The US government data on total fluoride intake shows that fluoridated water delivers between 1.6 - 6.6 mg per day fluoride to the average person.

Most commercially marketed toothpastes contain about 170 mg of fluoride per 170-gram tube, or 1 milligram per gram, while absorption rate varies by individual. If you brush your teeth with fluoride-containing toothpaste three times per day, fluoride exposure ranges between 2-4 milligrams per day. The daily dose fluoride most people receive from fluoridated water supplies ranges between 1.6 - 6.6 mg per day. Radiologic changes in bone occur when fluoride exposure is 5 mg per day. This is the average amount of fluoride intake consumed by most people who drink fluoridated water. People who brush their teeth three times per day and drink fluoridated water are exposed to a minimum of 3.6 mg to a maximum of

10.6 mg fluoride per day.

Fluorosis – Toxicity from excess fluoride

An average of 50% of all fluoride ingested accumulates in the body. Long-term dosages of fluoride greater than 2.3 mg per day may result in fluoride toxicity. The symptoms of excessive fluoride consumption are known as Fluorosis. Populations drinking fluoridated water have universally lower thyroid hormone levels. An exposure of 2.3 mg fluoride per day is the lowest daily dose associated with depressed thyroid gland function.

Excessive fluoride may damage the enamel-forming cells (ameloblasts) of the teeth, leading to increased porosity of the enamel and reduced mineral content of the teeth (known as dental fluorosis and characterized by white spots or yellow-brown staining and loss of enamel).

Fluoride (when ingested via the water supply through fluoridation with the silicofluorides forms of fluoride) may indirectly increase the prevalence of tooth decay; by increasing the retention of lead – increased lead levels are known to increase the prevalence of tooth decay.

High levels of fluoride cause Skeletal Fluorosis. Radiologic changes in bone are observed when fluoride exposure is 5 mg per day. This is the average amount of fluoride intake consumed by most people who drink fluoridated water. Skeletal fluorosis is endemic in at least 25 countries across the globe with the problem particularly acute in India, China and developing countries. Excessive fluoride causes deformed bones called Skeletal Fluorosis. Rats dosed with fluoride were found to have a

see *FLUORIDE* on page 18

Matt Wheeler heads toward the finish at Xterra Malaysia in Kuantan Malaysia. Read the full race report on page 50.
Photo - Denise Moir



From the Archives

Ask Dr. Bill about muscle mass

Author : Bill Misner, Ph.D.

Q: Can an age group athlete (60-65) still produce muscle mass? I know as we age things start to go to down hill to a degree; I had rather say slow down, but it still seems possible. My second question; how much protein is too much?

A: Thank you for your inquiry; this is a question masters athletes should not only be asking including doing something about.

Sleep & Hormone Balance

During sleep—typically every 85-100 minutes—Deep-Sleep-State REM cycles occur, which account for nearly 85% of the hGH release from the anterior lobe of the pituitary. Now, see how important deep stage REM Sleep cycles are? As an endurance athlete, you require at least 7-8 hours per night with dreams and waking in a refreshed state. In my case, I have difficulty reaching deep REM sleep, therefore I take 3-4 REM Caps that contain herbal relaxing substances and the hormone melatonin to induce deep REM sleep cycles. As males age past 40 years, testosterone decreases gradually comparable and parallel to three different estrogens-increase.

I do not recommend, as some of my colleagues do, a hormone-enhancing

substance for testosterone to aging masters athletes with benign prostate hyperplasia (most have this of a form thereof). I do recommend testing two weeks dose compatibility of Diindolymethane (a.k.a. DIM - 1 capsule AM 1 capsule PM). Diindolymethane (100 mg 2 x daily) stimulates the conversion of Estrone to its carcinogenic metabolite—16-Hydroxyestrone—and redirects Estrone to be converted to its safe metabolite – 2-Hydroxyestrone. In other words, it reduces the potency of the more harmful estrone to a safe 2-hydroxyestrone. By reducing the strength of estrone you give a leg up to existing natural testosterone (which opposes the effects of any form of estrogen).

Age Group Muscle Mass

The best method for absorption of dietary proteins is to consume no more than 40 grams at one sitting per three hours. [At more] than 40 grams at one meal, some of the protein can be diverted into fatty adipose tissues. The upper level protein requirement for an endurance athlete—regardless of age—is 1.7 grams/kilogram bodyweight, while the ideal I recommend is 1.4 grams/kilogram body weight.

So if you are a 70 kg athlete (154 lbs), you need to consume right around 100 grams protein each day in your diet. The highest proteins rated based on their Essential Amino Acid (EAA) ratios are whey and soy. Hammer Whey has six grams of glutamine per serving and is one of the highest biological valued proteins on the market. I also

recommend fish—salmon especially—soy, legumes, beans, nuts, seeds, and dark green vegetables for the wide range of protein donor ingredients.

How much is too much? Nitrogen balance studies following ingestion of protein—grams per kilogram (2.2 lbs)—show that once athletes consume more than two grams of protein per kilogram body weight (2g/kg bodyweight), not only does that protein add body fat weight, it also boosts nitrogen excess overload, resulting in elevated urea and ammonia. When this occurs, you the athlete feels very, very tired and energy level for exercise is inhibited. I advise no more than 1.4 grams protein per day during endurance exercise and then perhaps 1.7 grams protein per day following a strength or speed workout.

STEVE'S NOTE: In general, we recommend the higher figure—1.7g/kg bodyweight during periods of highest training volume and racing.

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National Champion Master's
Athlete, Bob Brooks.
Photo - Joe Aspatore

Multivitamins

Associated with longevity

Author : Bill Misner, Ph.D.

It is the chromosomes that produce the DNA-inscribed plan to regenerate all new cells every 180 days. At the end of chromosomes lies a tiny structure called the telomere. Following each cell cycle, the telomere shortens length. Once telomeres get too short the cell dies. Cells are supposed to naturally die in the process of new cell regeneration. Cancer cells are the opposite, they do not die, and because of other behavior, they oppose normal, reproductive healthy life-system cycle. How long you will live may be determined by measuring the length of a telomere on your chromosomes.

Scientists measured telomere lengths in the white blood cells taken from 586 females ages 35-74. They found that of those who consumed multivitamins, the telomeres were a surprising 5% longer length than in those who did not regularly consume a multivitamin. The protective effect for antioxidant-rich multivitamins suggests an association with extending life span and quality of life in these subjects.

Reference

Xu Q. et al. Multivitamin Use and Telomere Length in Women. *Am J Clin Nutr* 2009 March.

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statistically significant increase of cancer in both the liver and thyroid, which was not found among the controls.

Conclusion

Toothpaste and bi-annual dental hygiene checkups expose patients to a safe and unlikely toxic level of fluoride. Adding fluoridated water may cause symptomatic Fluorosis in over half the population exposed. Fluoride exposure under 2.3 mg per day via preventative dental treatment is recommended; when above 2.3 mg via chronic absorption daily may result in fluoride toxicity issues. A review of recent scientific literature reveals a consistent pattern of evidence—hip fractures, skeletal fluorosis, the effect of fluoride on bone structure, fluoride levels in bones and osteosarcomas—pointing to the existence of causal mechanisms by which fluoride damages bones.

In addition, there is evidence, accepted by some eminent dental researchers and at least one leading United States proponent of fluoridation, that there is negligible benefit from ingesting fluoride, and that any (small) benefit from fluoridation comes from the action of fluoride at the surface of the teeth before fluoridated water is swallowed. Public health authorities in Australia and New Zealand have appeared reluctant to consider openly and frankly the implications of this and earlier scientific evidence unfavorable to the continuation of the fluoridation of drinking water supplies [15, 16]. The benefits from preventative dental treatment utilizing a minimal fluoride exposure are noted, while evidence from large populations and animal studies demonstrating Fluorosis symptoms associated with chronic exposure to fluoride levels only modestly above those inhibiting dental caries.

Finally the lethal dose for fluoride is estimated at 500 mg for children and 2000 mg for adults [17].

References

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Reader Recipe

Over the weekend I discovered a new use for your Banana Hammer Gel. Spreading peanut butter between two pieces of whole grain toast, I sliced up half an apple and covered it in 2 tablespoons of Hammer Gel before folding it over into a sandwich. It gave me everything I needed and was delicious!

- Kata S.



Carbohydrates

Are they created equal?

Author : Bill Misner, Ph.D.

All carbs are not equal! I like to cite the example provided by a hog farmer who observed that his neighbor was feeding potatoes to his hogs and they were nearly 100 lbs heavier than his who were also being feed potatoes. "How come your pigs are gaining more weight than mine and we are feeding them nearly the same?" he asked. Turns out the farmer was feeding the same amount of potatoes only he was cooking them before.

The calorie density of a processed food is typically denser than its raw food predecessor. The glycemic index of processed foods tend to raise insulin and blood sugar higher driving calorie excess

into fat stores. Complex carbohydrates also store 2-3 times more fluid than fat. Reducing the glycemic effect of all carbohydrates during a meal while increasing the fiber, healthy fats, fluids, and protein will contribute to fullness and meal satiety, while insulin effects generating weight gain will be dramatically reduced.

In my opinion, carbohydrate volume is a close second behind lack of activity in obesity. The more you consume plant foods in their tolerated raw form and the less you consume high glycemic plant foods, the more likely your body mass index will seek a level that supports your activity rate.

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2009 Race Across America

By the time you read this, the 28th edition of the race that Outside Magazine referred to as "the world's toughest sporting event" will have been completed (the women's solo racers and 60+ solo racers began on June 16th, the men's solo racers began on June 17th, and the teams began on June 20th).

We'll have a full recap of this year's RAAM in the next edition of Endurance News. For now, we just wanted to mention that we're honored to be a major sponsor of this epic race again this year, just one of the many ultra cycling races that Hammer Nutrition supports annually.





The "Grey Area" of Fueling

Author : Steve Born

In general, when exercise goes beyond 2 hours, we recommend that athletes use a "carb + protein" fuel (Sustained Energy or Perpetuem), either as their sole fuel from beginning to end, or as their primary fuel (roughly 2/3 - 3/4 of the time). The reason for this recommendation is that once the athlete hits that second hour and beyond, a small percentage (roughly 5-15%) of their energy requirements will be fulfilled from protein. If the athlete doesn't provide some in the fuel mix, at least part of the time, the body has to cannibalize the lean muscle tissue to obtain the amino acids it needs to fulfill that small percentage of its energy requirements.

The last thing an athlete wants to do is have their body literally digest its own muscle tissue to make fuel. One reason is the increase in fatigue-causing ammonia; there is no doubt that excess ammonia is a primary culprit—perhaps THE primary culprit—in premature fatigue during endurance events. The other reason is that they'll have broken down a greater volume of muscle tissue, which will prolong recovery time. So again, generally speaking, when exercise goes beyond two hours, we recommend that athletes use Sustained Energy or Perpetuem, either as their sole fuel from beginning to end, or as their primary fuel (roughly 2/3 - 3/4 of the time), with Hammer Gel or HEED used to augment that. If it's a really long bout of exercise, a Hammer Bar on occasion would be perfectly acceptable.

Things may (key word "may") be a little different come race day. I believe that a race that's in the 2-3 hour range, perhaps just slightly longer, is in a "gray area" so to speak, which means that the athlete can use either a "carb + protein" fuel (Sustained Energy or Perpetuem) or a "carb only" fuel (HEED or Hammer Gel). The selection needs to be based on the following:

- **The type of race that they're doing.** For example, running is a more impactful and thus a more "digestively challenging" type of exercise than cycling.
- **The intensity of the effort.** It's

pace during a race, more blood is diverted from digestion and directed toward maintaining muscle performance. I tell athletes that when they get to the race it's great to have a caloric "game plan" in place, but they don't want to be a slave to it. They may need to alter that game plan (which may mean a slightly lower hourly intake of calories) to accommodate the possibility of a less-than-optimal digestive system.

- **The weather and how well or poorly the athlete is acclimated to it.** The hotter the weather, the more compromised the digestive system becomes. During hot-weather racing, the athlete usually finds that they need to increase their water and Endurolytes intake while lowering their calorie intake.
- **The terrain.** For example, I've found that when I'm doing lots of climbing while on the bike, it will

The last thing an athlete wants to do is have their body literally digest its own muscle tissue to make fuel.

a lot easier to digest calories when the pace is more relaxed, which it usually is during a training session rather than during a race. That's why I am fond of the saying, "have a game plan but write it in pencil, not in ink." What I mean by that saying is that caloric intakes that worked during training may not be appropriate during a race; the athlete may need to consume slightly less in a race than they did during training. Increased anxiety, increased pace, and increased potential for dehydration all contribute to the possibility of a less-than-optimally functioning digestive system. In addition, at the increased

diminish digestive capabilities somewhat.

My belief is that if the race is going to involve high intensity right from the gun, and/or if the weather is going to be very warm-to-hot, and/or if other factors such as hilly-to-mountainous terrain come into play, deference should be given to the fuel that is the quickest to digest, and that means HEED or Hammer Gel. Yes, some ammonia will be produced during the effort by not providing the body with some protein along with

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the carbs. However, if the race is in the 2-3 hour range—and perhaps just slightly longer—it will be over long before the issues involved with ammonia accumulation truly become problematic.

Again, in general we recommend a "carb + protein" drink (Sustained Energy or Perpetuem) when exercise goes beyond 2 or so hours. However, come race day—when a lot of variables need to be taken into consideration—the athlete has a lot of options to choose from when the race is in the 2-3 hour range... they need to go with the fuel that makes the most sense, based on the above-listed factors/variables. In my opinion, depending on the various factors/variables, I would use Hammer Gel or HEED for a high intensity race that's in the 2-hour to 3-hour range. When I know I'm going to be out there for more than 3 hours I know my body is going to perform a whole lot better if I use Sustained Energy or Perpetuem as my primary-to-sole fuel.

All this said, this is not meant to be a "set in stone" rule. Everyone is different so their fuel selection may be different than another athlete's. The earlier-listed information is just a suggestion for you to consider when doing a race that is 2-3 hours in length – the "gray area" of fueling.

How Endurance Amino fits in

For these "gray area"-duration events, I believe that HEED or Hammer Gel (or both), Endurolytes, and Endurance Amino is a superb combination. You're supplying your body with high quality calories from two very easily digested fuel sources, you're taking care of electrolyte replenishment in ideal fashion via Endurolytes, and, with Endurance Amino, you're supplying your body with the primary amino acids (the three branched chain amino acids and alanine) that are used in the energy cycle. Plus, the BCAAs in Endurance Amino assist in replenishing depleted glutamine stores while also helping to prevent muscle tissue breakdown, the latter helping to prevent excess fatigue-causing ammonia from being produced and accumulating. On top of that, the glutathione component in Endurance Amino provides a number of benefits, primarily powerful antioxidant support.

Endurance Amino supplies some key amino acids required during prolonged exercise. During a "gray area"-duration event, you could certainly use Sustained Energy or Perpetuem (absolutely no problem there), but for events in that 2-3 hour range it may be more feasible to use Hammer Gel or HEED to cover your calorie requirements, augmented by a dose or two of Endurance Amino to cover some of the amino acid requirements. It's

certainly worth testing in your training!

Now, in longer races (3+ hours or longer) the amino acids in Endurance Amino enhance the full-spectrum amino acid profile that naturally occurs from the protein component in Sustained Energy and Perpetuem. However, with Endurance Amino we're only talking about a few specific amino acids—the three BCAAs, alanine, and glutathione (which is actually a tripeptide)—so you're not fully replacing the full-spectrum amino acid profile that occurs in Sustained Energy and Perpetuem. For example, by going solely with Endurance Amino, you're not getting histidine, aspartic acid, or phenylalanine (among other amino acids) that have some "during exercise" benefits.

What you are getting with a combination of Endurance Amino and Sustained Energy or Perpetuem is more of some of the primary "during exercise" amino acids, which I don't think is a bad thing at all. In fact, I think it's highly beneficial because you're providing the body with even greater amounts of some key "during exercise" amino acids without oversupplying the body with more amounts of amino acids that it may not really require. Plus, with Endurance Amino, you're providing your body with a nice dose of multi-beneficial glutathione.

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Robb Beams spends time training at the MotoE Performance Training Center.
Photo - RJ Huss



5 Most Common Mistakes on Race Day

Author : Robb Beams

Race Day Mistake #1: Deviating from your regular routine

When it comes to getting the body warmed up sufficiently and properly, it needs to be subjected to the same exercise protocols that are used in training when away from the track. For example, it doesn't make any sense to expect a bicycle to be a sufficient warm-up tool if you're using something like the Concept 2 rower in your every day workouts. You also need to consider intensity levels. We don't want the intensity to be so high during the warm-up that it ends up leaving the body tired, but we also don't want the heart rate to not rise to a level that starts to produce and activate lactic acid shuffle. What we see is either riders are using the wrong tools to warm up or they're warming up at too high of an intensity.

Race Day Mistake #2: Coming to the starting line dehydrated or under nourished

When you sleep at night; your body pulls the necessary glycogen (which is sugar) from your liver to sustain your brain functions during the night. Then when you wake up in the morning and put demands on the muscles, the energy necessary comes from the glycogen

that's been stored within the belly of the muscle tissue. The challenge that we have on race day is the duration of time since your last meal - sometimes between 12 to 15 hours.

Think about race weekends: you're going to be racing on Sunday morning and practice or racing begins at 7:00 am. Let's say that you ate dinner at 6:00pm Saturday night and you wake up at 6:00am Sunday morning, that's 12 hours since your last meal. To put it in perspective, imagine that if you ate your morning breakfast at 8:00 in the morning, but then you didn't eat dinner until 8:00 pm and you had no snacks or any meals in between that timeframe, you'd be extremely hungry. But for some reason (whether we chalk it up to a nervous stomach or we're afraid that we're going to get cramps) we don't take the time to eat a good sized meal early enough so the muscle glycogen is already at a deficit before the gate drops. When you add high intensity racing, which tends to drain the glycogen from the tissue very quickly, and you can see why riders have a tendency to fade quickly or miss simple lines – all because the blood sugar levels within the rider is too low. Frequently this fade or silly mistake syndrome is blamed on a lack of fitness, but rather, should be attributed to low blood sugar levels.

Race Day Mistake #3: Lack of a post race recovery routine

When you come off that track, there's an enzyme that helps you replenish glycogen within the muscle and the liver called the Glycogen Synthase Enzyme. You've got about 20 to 30 minutes where that enzyme is at its highest level, so when the athletes come off the track the first thing they need to be focusing on is the replenishment of depleted glycogen. For races (i.e. Loretta's, Oak Hill, World Minis, Mini O's), where you've got multiple days back to back where you need to perform at a high level, failure to sufficiently replenish depleted glycogen is going to adversely affect the race results later in the week. As an example, if you took a bit of oil out of the engine after each race, you wouldn't expect the engine to still be running strong at the end of the week. The idea here is that every work out depletes some level of glycogen (the exact amount is based on the duration and intensity level) and it's the athlete's responsibility to get the body replenished to perform at an optimum level. Whether its 20 minutes later, 30 minutes later, whenever that next race is, you have to understand that as soon as you come off the track, priority number one is to get that body replenished and to get it rehydrated. Failure to do so is going to manifest itself out on the track as you start to fade and go backwards. Again, we're right back to an empty gas tank within the muscle. If you want to be able to perform optimally, moto after moto, day after day, it starts after each race or workout – so plan ahead and implement consistently.

Race Day Mistake #4: Racing at an intensity that is not familiar to your body

This mistake is not a misprint – many racers fail to race to their full potential

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MOTO from page 22

by riding too hard too early in a race! It is obvious that on race day you're going to be pushing a pace that's difficult to emulate during training, but training at an intensity level that's much less than the demands of race day leads to a culture shock to the body. It produces more lactic acid than the body has been acclimated to and the physiologic process of absorbing and diffusing lactic acid shuts the muscles down. The end result is that the contractions of the muscles are slowed down, you begin to focus on how bad your body is hurting and instead of focusing on racing the track, and you begin to make errors on the track that begins to negatively affect your confidence. To offset this negative effect of lactic acid, you want to try to incorporate a couple of workouts a week that is held at an intensity level on the motorcycle that will accurately emulate race intensity. Additionally, you need to make sure you are testing and training at the same intensity levels off the motorcycle with various forms of cross-training. If you want to race at a higher level on the race weekend, incorporate similar conditions and intensities when you're practicing on the motorcycle along with your cross training off of the motorcycle.

Race Day Mistake #5: Not racing the track

The final and biggest problem that we see on the race day is racers shifting their focus from preparation and implementation of a normal routine to who is on the gate. The rider begins to size themselves up against somebody else and then pulls in a past performance

of the other rider, and then immediately dumps that information into the race at hand. For example, if somebody was going to roll up to the gate against Ricky Carmichael, it doesn't really matter that Ricky may have won 24 straight motos, what matters is the fact that you have the same opportunity to go out and race the track as aggressively as he does. Your goal is to make the least amount of mistakes, carry as much momentum as possible and charge the track.

If somebody else is jumping something,



Practicing at MotoE Performance Training Center. Photo - RJ Huss

they think they need to jump it. My question is why you don't just focus on racing the track; race every section as hard and as fast as you can, try to optimize every single section of the track and your goal is that you would do it faster and better than everybody else. It's not that you can't learn something from somebody else, but when the gate drops, the only thing that you can take control of is yourself. So, what I want you to be thinking about is how I can get through this section faster than anybody else. Frequently, this requires thinking outside the box. When another rider is doing something through a rhythm

section that nobody else has thought about, and probably not even willing to try, the results speak for themselves. Be smart, but creative and you will be surprised at the outcome.

If you really want to optimize your fitness and preparation, you want to create the mindset that you are racing the track - lap after lap with your pace falling off as minimal as possible. We don't want you to come around the track on the opening lap with a time of 2:00 and then fall off to a 2:15. Ideally we are looking for less than a one second deviation from your first to last lap - you've seen this emulated by both James and Ricky. The only way you can do this, is to race the track, minimize mistakes and make the best of something when it goes wrong. Allowing frustration and anger to sidetrack your focus, doesn't fix the fact that you've messed up the rhythm section. Re-establish your timing; get back to charge mode and carry as much momentum as possible to create the fastest lap times on the

track. Remember, practice doesn't make perfect. Perfect practice makes perfect!

Motoendurance.net is a premium resource center for motocross and supercross riders of all abilities. The site outlines the MotoE Performance Training programs available to racers for 2009 - similar to training programs used with great success by WMA Champion Ashley Fiolek and AMA MX Lites star Kyle Chisholm in 2008. Additional resources available include the MotoE Performance Training Facility in Haines City, Florida, eBooks on various human performance elements and online instructional videos. To discuss your current program or have a new one developed for you; feel free to contact Robb Beams at Motoendurance.net or 407.701.7586 directly.

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Owen Gue stays focused heading into a corner. Photo - Angela Nock

Riding the Edge

Author : Jim Bruskewitz

I speak with many athletes using E-stim (Electro Muscular Stimulation = EMS). We discuss training with the Globus EMS units and the conversations are just like conversations I have with athletes for whom I write training plans. It isn't easy to feel as though you've fit all the pieces together to produce a plan that yields optimal results. One of the challenges of designing a training plan that does or does not include EMS training is that we are capable on any given day of enduring a training load that is larger than one we can absorb and recover from in time to do it again quickly. What makes it all the more challenging is that we don't know if we have stepped over the line of doing more than we can absorb until later-a day or two removed from a workout or collection of workouts. Everything may seem to be clicking along in a way that bodes well for a great performance only to find that we "get off track" and "lose our edge". Of course experience with getting off track teaches us what we shouldn't have done and that's valuable information. It doesn't do much for the frustration we feel when our good intentions leave us bent over to pick up the pieces instead of rolling smoothly toward achieving our goals.

At this point in the season we are well into our training routines. E-stim training that includes active recovery, massage, and warm-up programs are no-brainers. They'll only enhance a training session or race or they'll get you ready for the next one more quickly. We

address the "losing our edge" situation with these programs. Those that try to add training right now, like a host of strength training offered with a Globus E-stim unit or a race specific workout, can't find the space within their week to add and absorb this training. If you are trying to do this by following a planned series of workouts or incorporating say a Globus endurance program to help increase your race pace, you may find that changing the frequency and load may put you back on track.

Ever had an injury and found it difficult to find a training load that allows you to regain your ability to absorb a reasonable training load? I know

whole new mental approach to wrap your head around the idea that you can run for only 5 minutes at a time without overstepping your body's ability to absorb the load. If you runs 5 minutes every day seven days a week, no one session will compromise your ability to recover, and then at least you have 35 minutes of running in for the week. That's better than running 20 minutes one time and then having to recover for days because of another setback. You can progress quickly and be running 20 minutes every day without problems. In a month's time you can be running more miles in a week than you did when uninjured.

Finding it impossible to fit in the training you really want to do without dead legs or some kind of fatigue is like being slightly injured. If you want to enjoy the benefits of a faster race pace by using a Globus endurance program but it seems to get in the way of your

Ever had an injury and found it difficult to find a training load that allows you to regain your ability to absorb a reasonable training load? I know the answer to that question.

the answer to that question. This is what I have found to work. Increase the frequency of your running (that discipline most likely to leave you limping) or cycling etc... With this increase must come a reduction, many times a dramatic one, in the training load. Decrease both the intensity and the volume. Who runs 20 minutes for a workout? Not many - it isn't much of a workout unless it's a 5k race effort. When you are having problems absorbing a load, like when you're recovering from an injury, a 20 minute run may be way too much. It takes a

traditional training, then treat the added training as though you are rehabbing from an injury. You can train with the Globus endurance program without the suggested 48 hours of recovery before your next hard workout if you control the training load by controlling the intensity. This is easily done since you have 120 graded intensity settings starting with an intensity you can't detect and progressing to one you can't tolerate. Go easy with the intensity and use the program often, even daily. You can very gradually increase the intensity

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GLOBUS from page 24

of the program as your muscles become accustomed to it. You are gaining fitness in the process. Once the levels get up to something that is considered more standard, over 30 mA for those familiar with E-stim training, you're ready to start taking days off between Globus endurance sessions. The suggested 48 hours of recovery between sessions can be employed. Now you are in a position to absorb a load that fits in with the rest of the traditional training you are doing. You've also gained a good deal of insight regarding how you respond to different EMS training loads. It certainly is gratifying when your hard work delivers the desired results. Enjoy riding the edge!

Jim is a multiple-time World and National Age Group Triathlon champion, a coach www.enduranceperformance.com, and former Lecturer at UW-Madison-Department of Kinesiology. He recently left teaching at UW to study and teach EMS training.

Real Athlete, Amazing Result!

I got hit by a truck while biking in August of 2007 - 5 days before I was supposed to fly to Germany for International Triathlon Union's World Championships. I broke my neck, my spine in 3 places, both wrists and 1 rib and, I had a dissected L carotid artery with a large blood clot in it. I was put on Heparin to dissolve the clot (and prevent a massive stroke) but I had a hematoma in my R thigh that led to pre-compartment syndrome and 6 surgeries (fasciotomies) within a one week span. Basically, my quad was roached. They had to split my IT band, too. I was told I may never walk and I definitely would not race triathlon. Well, I did walk and then I eventually got my Globus. I have been using the strength and recovery programs. I have noticed a remarkable improvement. It is almost unbelievable! I only did one tri last year - USAT Nationals - and I qualified for the US Team going to Brisbane, Australia for World's, Sept. 13, 2009! Pretty cool for someone who was never supposed to walk! Yes, I also did physical therapy and I am careful with my nutrition (I love Hammer Whey for recovery) but I believe my Globus had a HUGE effect on my ability to strengthen, recover, and train my right leg to perform again!

- Kathleen Allen

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Fitness - \$599 3 FREE sets (up to a \$39.00 value)

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Brian Frank demonstrates cola consumption with a rare drink on a hot summer day.
Photo - Kelly Pris

High Cola Consumption May Lead to Severe Health Consequences

Author : Steve Born

An article that recently appeared in a major newspaper reports that a warning has been issued by experts against the consumption of large quantities of cola, stating that it could lead to various maladies such as muscle problems, irregular heartbeat, and bone weakness. This warning is borne out of observations that the cases of cola drinkers suffering from health issues has risen, which coincides with a food industry push towards an increase in portion sizes.

In addition to issues such as tooth decay, diabetes, and bone weakness ("softening" of the bones), doctors have noted an increase in patients suffering from a condition called hypokalaemia, which is defined as an abnormally low level of potassium in the circulating blood, which can lead to weakness and heart abnormalities.

Dr. Moses Elisaf of the University of Ioannina in Greece states, "We are consuming more soft drinks than

ever before and a number of health issues have already been identified, including tooth problems, bone demineralisation, and the development of metabolic syndrome and diabetes. Evidence is increasing to suggest that excessive cola consumption can also lead to hypokalaemia, in which the blood potassium levels fall, causing an adverse effect on vital muscle functions."

Dr. Elisaf's study detailed cases where subjects drank two or more liters of cola daily, an amount that's actually quite easy to accrue, especially given the fact that the serving sizes the food industry sells is already high and seemingly increasing on a regular basis.

We don't recommend drinking cola, primarily because most of them are comprised of glucose and fructose. If, however, you choose to drink cola, do so very sparingly, knowing that the consumption of large amounts—as reported in this latest finding—may lead to severe health consequences.

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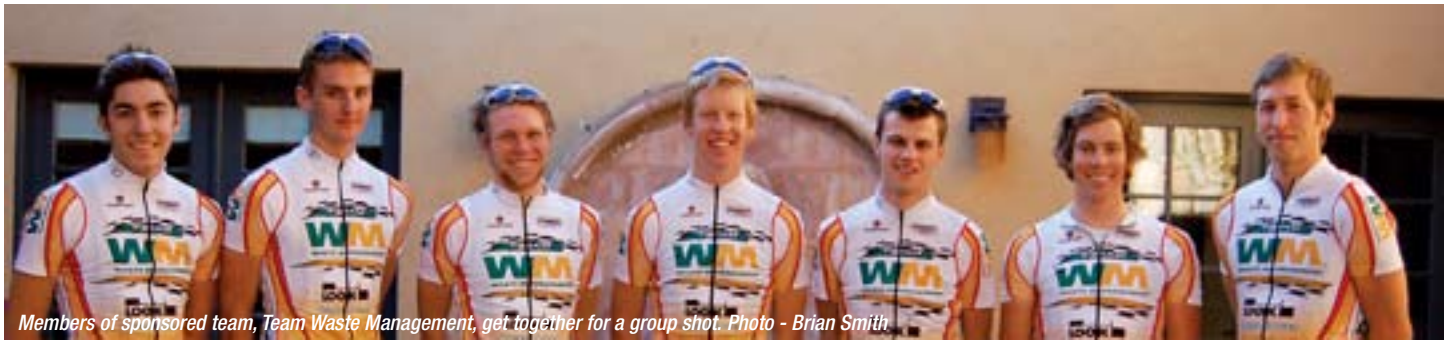


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Members of sponsored team, Team Waste Management, get together for a group shot. Photo - Brian Smith

Muscular Dysfunction

Magnesium's role in maintaining health

Author : Dr. Lowell Greib, MSc, ND, CISSN

Summer has now arrived and many of us have dramatically increased our activity from our "off" season bouts (especially when north of the 45th parallel like I am). Along with the improvement in aerobic fitness, we generally all experience aches and pains as we proceed through our training season. As much as these are deemed "normal", neuromuscular dysfunction may play a role in how we feel, but more importantly, in how we function! Beyond the formation of myofascial trigger points (described in Issue #63), it is important to consider nutrition as an element to proper muscular function.

Mg²⁺ (magnesium) is the fourth most abundant metal ion in cells. Magnesium is linked to more than 325 enzymatic processes and is essential for maintaining the shape and function of nuclear and mitochondrial DNA, RNA and ribosomes. In essence, magnesium is required in the building process of proteins. It is also required as an activator of enzymes that guide the production of adenosine triphosphate (ATP). Further, it regulates muscular contraction. As athletes, it is important that we have an understanding of how Mg²⁺ may have a role on muscular contraction. Let's take a closer look at this...

There are a variety of Ca²⁺ (calcium) binding sites in muscle that may play a role in the regulation of muscle contraction and other enzymatic processes. Since most of these proteins

also bind Mg²⁺, it is important to consider the effect that the high free Mg²⁺ concentration found in muscle has on the Ca²⁺ binding properties of these sites. The major effect of Mg²⁺ is to greatly reduce the rate of Ca²⁺ binding to the sites that bind Mg²⁺ and Ca²⁺ competitively (Ca²⁺-Mg²⁺-type sites found in troponin, parvalbumin and myosin, which would be essentially saturated with Mg²⁺ in a relaxed muscle) due to the slow dissociation of bound Mg²⁺. Simply put, if Mg²⁺ is bound to the receptor (displacing the Ca²⁺), depolarization will be limited (i.e. muscular contraction is decreased), which keeps the muscle in a relaxed state. Beyond this indirect effect, Mg

magnesium status. In fact, a two-tier classification system has been proposed which accommodates latent, occult, and subclinical situations, all of which may have normal serum magnesium status!

With all this said, who is really at risk for magnesium related muscular pain? With approximately 75% of the American population consuming less than the RDA, one would quickly deduce that many people may suffer from some sort of deficiency! Data also suggests that average or marginal Mg consumption may be further exacerbated by extreme activity (which to most of us, is NOT extreme) or other physical or psychological stressors. There is little data supporting the ergogenic effects of magnesium supplementation, however, research has shown links between low Mg levels and impaired endurance performance as well as depressed performance in strength related events.

...it is easy to see that maintaining magnesium status is important for all, but especially those of us who endure extended bouts of exercise (whether by duration or volume).

anchors adenosine diphosphate (ADP) at the myosin active site. Mg is thus essential for regulating the entire contractile cycle.

Albeit, this all seems pretty simple and does not answer the question as to why a person with "normal" serum magnesium may have muscle cramps, migraines, hypokalemia (an abnormally low concentration of potassium in the blood), and neuromuscular irritability! Two factors that play into this are the fact that the dynamics of Mg homeostasis are poorly understood and there is not a consensus of the measurement of

It is clear that magnesium intake may need to be assessed by all of us. The RDA suggests that for adults our intake should be 310 to 420 mg daily, age being the dependent variable. These data are based upon balance studies, which suggest a need of 6 mg/kg/day. We also know that there may be increased demands with exercise and side effects have not been exhibited at 8 mg/kg/day. From an orthomolecular standpoint, it may be necessary to take considerably more than these levels to

see MAGNESIUM on page 29

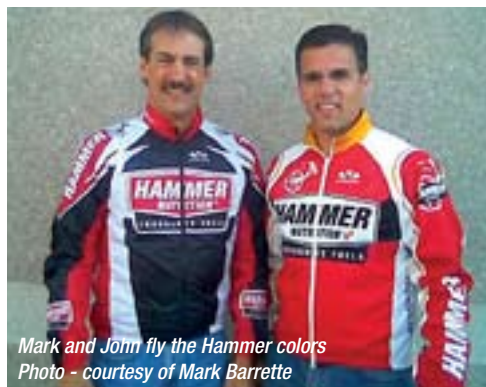


The Boston Marathon

Beating the bonk

BRIAN'S NOTE : We received this great testimonial from John Gard and wanted to pass it along. Nice work John and Mark!

My great friend Mark Barrette encouraged me to put down some thoughts to you about my recent experience at the Boston Marathon and my use of Hammer products. Mark and I talk all the time about Hammer and are constantly trying new approaches with your products to improve success and ease of use.



Mark and John fly the Hammer colors
Photo - courtesy of Mark Barrette

The following is just one guy's opinion. I realize that everyone responds differently to different things. I will start out with some brief notes so you understand what type of runner I am (definitely not elite).

On Monday, April 20th, 2009 I competed in my 2nd Boston Marathon (2008, 2009). I am 45 yrs old, about 5'9" and 168 lbs., and have been serious about longer distances for about the last 2 1/2 years. I ran cross country and track in college at the University of Wisconsin-LaCrosse and was a decent runner but by no means elite like most of my friends.

I ran my first marathon in May 2007 with the training help of Mark Barrette. I ran a 3:15 in Green Bay and qualified for Boston. I bonked badly at about mile

22 but had enough gas left to qualify. In that first race I used Hammer Gel and Endurolytes in doses and frequencies directed by Mark.

I ran my first Boston last year in just under 3:22 and again struggled late in the race. None of that is unusual for marathoners obviously. I tried Perpetuem at mile 17 and it was just too hard to use and didn't sit right. Up until that point I had used Hammer Gel.

For this year's Boston, I decided to incorporate

Perpetuem in my training for the last 3 long weekend runs. It quickly appeared to me that I felt much better late in those long runs than I had just using Hammer Gel and Endurolytes. We had a really tough winter so heat was never an issue for my training. I worked to get smarter about the preparation and use of Perpetuem before and during run.

On race day, I consumed one packet of Hammer Gel about 30 minutes before the race and then I would take a mouthful of Perpetuem every 20 minutes after the race started and slowly wash it down with water. I had it in a soft flask in a consistency a little thicker than pancake mix. I also took an Endurolytes every 30 minutes and only drank water throughout the race. Mark had

consistently told me that he thought I would delay hitting the wall for a couple more miles with the Perpetuem and it worked like a charm. Boston is a tough course but I am completely convinced that the change in use of Perpetuem for me made an enormous difference. I ran a 3:14- almost 8 minutes faster than last year into the wind but more importantly, ran progressively negative splits the last 6 miles! Any real wall was pushed into the 25th mile and by then adrenaline and the crowd pushed me through the end. I am totally convinced the Hammer Nutrition routine made the biggest difference.

Ultimately, I want you to know how pleased I am with the Hammer line. I believe it makes a huge difference in performance, recovery, and health.

Thanks for the great work and your help with me in my own personal challenge with Boston.

Sincerely,
John Gard



Decorations on course shine throughout the night.
Photo - Jason Keister

24 Hours Round the Clock

May 23 & 24 - Spokane, Washington

Author : Brian Frank

Although we have sponsored this event since it's inception roughly ten years ago, we have never entered a rider or team in the event. For reasons which I'm not entirely sure I could enumerate, I decided it'd be fun to enter a four rider team in the event this year. I recruited Jason Keister and Dustin Phillips from our office because they are way fitter and faster than I'll ever be. I asked Steve to be our fourth, but he opted to come over and run the fueling trailer while acting as our support crew. So, our fourth rider ended up being Matt Butterfield, a local mountain biker with a pro card who rides with Jason on the Sportsman Ski Haus team and usually does the Highline ride with us each summer. So the team was set, three fit and technically skilled mountain bike racers and me. My son, Miles, joined Steve as our second crew member. Pretty much a dream team for me - Steve Born crewing and three studs all making me look good. Having Miles in the pits helping out and keeping things light and in perspective made this dad proud as well.

Things turned out pretty well and we ended up a close 2nd in the four person open division, completing 24 circuits on the fun 15-mile loop course. Had I not been giving up ten minutes per lap, we'd have won handily. This event actually starts with an 800 meter run. They call it a "Le Mans" style start, but it's a bit more. Since Dustin is as strong a

runner as he on the bike, we elected him as our lead off man. Good call because he quickly sprinted to the front and led out of the bike rack area. At the end of the first lap, he was 2nd into the timing tent, about 15 seconds behind the first bike. The guy has skills and genes to spare. Jason and Matt kept us out front until I got passed by the eventual winners mid way through my 5th lap. We were not disappointed at all since we'd showed up with no expectations and had great fun while suffering more than we had in years.

Despite all of our collective experience in providing fueling and nutrition guidance to our clients, none of us had ever participated in a 24-hour mountain bike event. Back in the day, Steve did 24 Hours of Moab on a team, so he knew what we were in for and was as attentive as any support crew could be. We all learned how different and difficult doing six one-hour time trials with three hours rest in between is. We figured we'd be able to sleep a good bit in between our laps during the night, but that did not happen. I think I dozed for 20 minutes or so between 4 and 5 a.m.. It's been a long

time since I've skipped a night's sleep, so that was fun too. No comparison to riding your bike for six hours straight. This gave us all a perfect opportunity to practice what we preach, and it worked like a charm. It was a warm and sunny weekend, not what any of us were used to, so that was the first challenge. The temperature was about 80-85 degrees at race start and we've all been training in 30-50 degree temps. So, for our first



Brian, Dustin, Jason, Miles, and Steve prepare to head to Spokane.
Photo - Angela Nock

two laps each, roughly from noon until 6 p.m., we all took three Endurolytes before beginning our laps and 2-3 when we finished. The next challenge was eating - with three hours to rest between stints, we did technically have time to eat and digest a small meal of solids, but we found that the intensity and heat make that a bad option. Instead, we used a serving of Recoverite and sipped Caffé Latte Perpetuum in between laps. For our laps, some of us took a serving of Hammer Gel just before starting each lap and drank water during. Matt preferred taking a 21-ounce bottle of HEED with him on his laps, ate Hammer Bars after, and consistently turned in some of our fastest laps, so it

see ROUND & ROUND on page 31

ROUND & ROUND from page 30

was working for him. The bits of solid food we did manage after the middle laps were composed of whole grain sprouted bread with turkey, avocados, Brown Cow cream-on-top yogurt, strawberries, apples, bananas, and Hammer Bars. We all ate very little of these things though, just bites here and there. None of us had any issues with cramping or gut problems, which is always nice.

Unfortunately, the same could not be said for a lot of the competitors who were experiencing fueling issues within the first three hours, keeping Steve busy doing what he does and loves most - helping athletes correct their errors so they can perform at their potential. That meant handing out copious amounts of Endurolytes (36 bottles, 10-15 capsules at a time), 60 gallons of HEED, dozens of jugs of Hammer Gel in flasks, singles of Perpetuem, (café latte of course), and dozens of Hammer Bars. Everyone was happy to have the access not only to the products, but to Steve and the rest of us, to discuss corrections to their fueling plans. This was easily the most rewarding aspect of the weekend for all of us. Being able to participate was a close second though.

These events are definitely addicting. Jason, Matt, and Dustin are already making plans for Moab in October and a five rider team for Kanmore in July. Maybe we'll find one to do in November before hanging up the bikes and breaking out the skis again. The festival

atmosphere, all of the families supporting their husbands, wives, fathers, mothers, children, etc. was so refreshing and just seemed to be a celebration of something so simple and yet difficult at the same time. You can't help but feel like everyone is in this strange club where everyone is welcome as long as they want to hang out and ride their bikes for a long time. Of course, most of the credit goes to

that everyone has a great time. If you have an opportunity to do any of their events I'd strongly recommend that you do so.

Check out their events at www.roundandround.com



*Dustin runs strong during the 'Le Mans' style start.
Photo - Brian Frank*

Round and Round Productions, which is run by our long time friends, Gino Lisecki and Wendy Bailly. They personify commitment and dedication and really do an unbelievable job in putting on the event, seeing that it runs smoothly and



*Jason, Matt, Brian, and Dustin show off their hardware on the podium.
Photo - Steve Born*



Steve mans the trailer. Photo - Brian Frank

Real Athletes, Real Results!

I just competed in my first 24 hr. solo race at the 24 Hours Round the Clock in Spokane, WA. I podiumed with a 3rd place finish. I met Steve Born and thanked him for the information he provided in his book, "The Endurance Athlete's Guide to Success". I used Hammer products solely for the entire race. Four days before the race I loaded with Race Day Boost. Throughout the race I took Endurolytes, Race Caps Supreme, Raspberry Gel, Café Latte Perpetuem, and a few Hammer Chocolate Chip Bars. I felt great and never cramped! After the race I drank Recoverite and felt great the next day. I plan on using this same fueling strategy for the 24 Hrs of Nine Mile in Wisconsin later this summer. Thank you Hammer. Your products really work. Sincerely, Mike Freudenthal



*Brian and Miles relax between laps.
Photo - Jason Keister*



Inner Fitness

Part I - Cultivating awareness

Author : Jeb Stewart

"Don't try to change what you are doing. Just notice what you are doing."

-Tim Galway, author of *The Inner Game of Tennis*, on changing behavior and improving performance.

Maybe you have been struggling with a particular area of your performance or maybe just reading these words is the first time that you have become 'aware' of this possibility. Whatever the case may be, once you have realized that there is something to be worked on then progress can be made. However, this is where it gets tricky, because the most common approach to a perceived problem is to work on it even harder, especially in sport. Why is this? Is it because of the culture we live in? Is it the result of some long-held belief we have about ourselves? Is it due to a lack of awareness of what is actually going on with us? This line of questioning could go on ad infinitum, but answering them wouldn't necessarily solve our dilemma.

Whatever the reason, it is counterintuitive for most of us to take the approach of pausing, stepping back, taking a few deep breaths and trying a little less when faced with a perceived problem. After all, aren't we supposed to know all of the answers and keep working vigorously until we find or create one? When we are tense, or experiencing any number of negative thoughts or feelings as the result of our expectations not being met, our awareness of, and openness to another

way can be completely shut down. By simply taking pause and assessing our current situation objectively, whether it be finishing a criterium or working through discomfort in our bodies, often times the answer just makes itself known, with little or no effort on our behalf. Is this magic? Not likely, but it can sure feel like it.

It has been said time and time again that best athletes, musicians, artists and business people operate at their best when they are calm and relaxed. Being in a calm and relaxed state allows you to have the awareness of when to step back and stop pushing so hard. For it is when we stop pushing so hard, that the answers we seek, and the resultant performance that occurs from applying these new found solutions, suddenly come to us.

Physical vs. Mental Training

Why is it that so often we find it easier to do an extra 50 miles on our long ride or that extra Vo2 max interval than take a few minutes a day to address our Inner Fitness©? Whether it is due to the unsustainable and often unhealthy pace of life that many of us lead today,

either out of necessity, choice or addiction to doing so, the end result has been a seeming inability or an outright aversion to sitting still. If I had a nickel for every time I have heard myself or someone else say that we "just don't have the time" to do X, Y or Z, I'd have a lot of nickels.

The bottom line is that we have time for whatever we want and/or choose to make time for in our lives. Ultimately, the question that begs answering is how bad do we really want it? Unless we see the direct relationship between doing so and the achievement of a high level of holistic performance, the answer is

likely to remain "not very much", and reasonably so.

This is why developing our level of personal awareness by cultivating our own practice is so key to breaking through our performance limiters. In doing so, we can become keenly aware of what is really standing in our way and be more open to a much wider range of potential solutions to our dilemma. Developing our level of Inner

Fitness© through various practices and techniques can be the missing link between success and failure, joy and frustration.

Laying Out the Tools

So, what tools can you apply to help you start to identify your performance limiters and begin developing your Inner Fitness©? It should not come as any big surprise that one of the first tools that you can add to your performance/success tool kit is the simple act of slowing down

see AWARENESS on page 33

"Don't try to change what you are doing. Just notice what you are doing."

Tim Galway, author of *The Inner Game of Tennis*, on changing behavior and improving performance.

AWARENESS from page 32

and paying attention to what you are doing. While this may sound incredibly simple, it is far from easy. However, with practice it can easily become second nature.

There are myriad approaches to working on developing a clear, focused, positively referenced mind and a relaxed, healthy body. The techniques listed below are just a few of the tools and techniques that can be used to develop a positive state of Inner Fitness© that can help you identify and overcome your performance limiters, achieve your goals and experience levels of joy and success far greater than anything you might have imagined. Some of these simple, powerful tools include:

- Meditation
- Journaling
- Goal setting
- Visualization
- Setting intentions
- Stress and relaxation techniques
- Performance mantras
- Energy medicine

This is by no means an exhaustive list. However, it includes the techniques I use with my clients to successfully achieve the levels of awareness and performance they seek in their sport and in their lives. Not everyone resonates with a particular technique, so I try to expose them to a wide range of tools so that they can discover which ones work best for them. We will explore these in great detail next time.

Personal Exploration

Rather than leave you hanging, I would like to help you begin expanding your own level of personal awareness in all areas of your life by playing with each of these exercises at least a few times per week. Simply go into them with an open mind and a playful spirit.

1) Stop yourself at any point during the day, particularly if you find yourself 'struggling' in any way, and consciously shift your attention to your surroundings for a few minutes. Breathe deeply, relax any areas of tension in your body and just take everything in. Write down what you notice, including what you see, how you feel and if your thoughts, feelings and/or experience

may have changed as a result of doing this simple exercise.

2) Catch yourself forcing a solution on a problem or excessively struggling with anything throughout the day. Try taking a few deep breaths and stepping away from whatever you are doing, even if it is for less than a minute (take as long as you reasonably can) and see if a solution presents itself or if things work out easier once you've taken time to pause and step away. Try this as often as possible.

3) Set aside a minimum of 5 min/ day, every day if possible and just be. Simply use this time to breathe, relax, meditate if you're already able, or just take in your surroundings. The point is not about doing it perfectly, it's about making the commitment to yourself to take the time to do nothing and allowing whatever happens or comes up for you to be exactly as it is, without stress or judgment.

4) Journal your experiences over the course of the coming weeks and months. Note any awareness's that arise in the course of doing these exercises and any changes that may occur in your approach to training, life or in your level of performance. Include changes in how you think, feel and act. Jot down anything you find that could use some work as well as the things that seem to be best serving you at the moment.

Most of all, remember to have fun with this exploration. Honor yourself for being willing to self-examine. It takes courage to be willing to look at ourselves objectively. It is an endeavor that can yield prodigious results.

See you next time when we explore these techniques and their application in detail. Until then, be good to yourselves and enjoy the journey.

Jeb has a Master's degree in Exercise Science and Health Promotion, is a USA Cycling Elite Level Coach and a continuing education provider to USA Cycling and USA Triathlon. He is the co-creator of The Next Level, Strength Training for Endurance Athletes DVD and contributes regularly to industry publications and web sites. He owns and operates Endurofit, LLC, a coaching and consulting company dedicated to performance enhancement and personal fulfillment for athletes, coaches and organizations. For more information, visit www.endurofit.com or contact Jeb directly at jstewart@endurofit.com.

Reader Recipe

I have been using your products for over ten years and I am always amazed by them. I suffer from bad food allergies, am an avid cook, and a long time endurance athlete and a professional ski instructor. I thought you would like to check out one of my favorite smoothie recipes.

Pumpkin Pie Chai Smoothie

1/3 baked organic yam

(not a sweet potato as I am allergic to potatoes)

1/2 cup rice milk *(soy is fine too)*

1 scoop Hammer Whey Chai

1/4 Tsp of Pumpkin Pie Spice

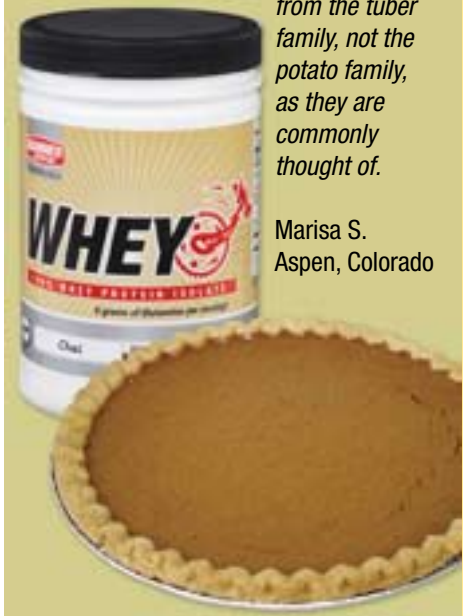
1/2 Tsp of avocado

Blend all ingredients until smooth.

Notes: You can add vanilla yogurt, or use yogurt and water mixed, for the milk portion. If you are trying to avoid all fats, omit the avocado though it does help it burn longer and gives a very creamy texture. You can use any baked squash as a substitute for the yams, even canned pumpkin works great (organic if possible).

Allergy Notes: If you are allergic to milk try soy and visa versa. Rice milk is the most benign of all the milks. Yams are from the tuber family, not the potato family, as they are commonly thought of.

Marisa S.
Aspen, Colorado



Roman Van Uden reacts to his win of Stage 4 at the Tour of Gila.

Photo - Brian Holder, www.veloimages.com



Team Spotlight

Team Land Rover-ORBEA

Author : Dustin Phillips

Earlier this year I introduced CMG, a junior cycling team that we are heavily involved with. Currently, CMG has at least 4 of its team members doing a European stint with the junior U-23 development program. I can say that Hammer Nutrition is truly committed to the future of racing. In this newsletter I would like to bring your attention to one of the under dogs of the big players. In this difficult time when cyclists are losing contracts like supermodels lose their lunch, Land Rover-ORBEA is growing and out there beating the odds with both talent and results, but most of all, their efforts in the community.

Many of you who may or may not follow cycling, probably heard of this team for the first time at the Tour of Gila. It was that gutsy criterium finish with the likes of Ivan Basso and Damiano Cunego watching. While the interest was surrounding both Levi and a certain rider named Lance Armstrong, all of a sudden this small pro team was getting noticed, and now by an appreciative Lance. This is not only a talented bike racing team but Land Rover-ORBEA flies the yellow of the Lance Armstrong LiveStrong cancer foundation.

Why does this team uniquely stand out? While the team's goal is to be successful on the road like all teams, Land Rover-ORBEA ultimately leaves their mark off the road. The team founders, Noreen and David Godfrey, who are very hands

on with this pet project, were personally affected by cancer when it hit Noreen's mother. Here's the team story:

The creation of Team Land Rover-ORBEA, benefiting the Lance Armstrong Foundation, is the result of the dream of the team's captain, Norene Godfrey. Norene is a competitive cyclist who

encouraging her to persevere.

In order to repay Lance for his kindness and "pay it forward," Norene dreamed of a cycling team that would ride in support of the Lance Armstrong Foundation and its fight against cancer.

Thus, Team Land Rover-ORBEA, benefiting the Lance Armstrong Foundation was born. Land Rover-Orbea has raised over \$63,000 dollars for the Lance Armstrong Foundation and has sent 8 cancer survivors to the Portland and Austin LIVESTRONG challenges.



Josh Bartlett at Redlands.
Photo - Lyne Lamoureux,
www.podiuminsight.com

The time that these riders spend on the road, training and volunteering in hospitals across the country, is really inspiring. The last couple years of tremendous effort from both Noreen and David are now allowing them to taste the fruits of their labor. They have assembled a talented team of

lost her mother to cancer in the fall of 2001. Her mother was inspired by the courage of Lance Armstrong to continue waging her battle with cancer. Lance is obviously an international mega-star athlete, known for his victories against testicular cancer and the world famous Tour de France. Yet, despite his hectic schedule, Lance took the time to personally touch Norene's mother's life, even sending her one of his cycling jerseys autographed with the words "Fight mom, Lance Armstrong" thus

international and local racers who I get the feeling are not finished leaving their mark this year.

Josh Bartlett

Josh, a native of Windham City, New Hampshire, showed in 2008 that he could finish any race no matter how tough it was. Josh took 2nd in the 2008 OBRA Road Race Championships, then

see SPOTLIGHT on page 35

SPOTLIGHT from page 34

raced the Cirque du Cycling Criterium the same evening. Josh brings his positive attitude and his never-ending work ethic to the team and will help drive Land Rover-ORBEA to a successful 2009 season.

Jim Camut

Jim comes to Land Rover-ORBEA from the Johan Bruyneel Cycling Academy, which is a cycling center based in Belgium. Jim is also a student at Penn State University and balances racing with studying. Jim took second in the Clarks Valley Time Trial Championships in 2008.

Evan Elken

Evan, a member of the Jittery Joe's Professional Cycling team, brings his leadership and experience to this young Land Rover-ORBEA team. Evan will be taking the leadership role in directing the team on the road. Evan will have immediate impact on the team's overall performance with his aggressive racing style and tenacity.

Logan Hunn

After having a tumultuous year in 2008, Logan took 4th in the 2009 New Zealand U23 National Time Trial Championships. Logan has shown he's more than capable of mixing it up in stage races and works best when it's the race against the clock.

Carson Miller

Carson has been building consistently as a strong performer since becoming an elite rider in 2008. He has shown that he has a big engine and is a solid climber as he took the U23 GC at Tour de Nez in 2008. Carson will continue to improve his climbing ability and will be looking for more opportunities in 2009.

Mike Northey

After spending four years in Europe with the New Zealand National Team, this 21 year old is looking to race in the States. Mike took third in New Zealand's U23 National Criterium Championship; he also took first in the North Harbour

Criterium. Mike brings his easy going attitude to the team and will be a huge asset to Land Rover-ORBEA's success.

Bobby Sweeting

Bobby joins the team after a successful season with Toshiba-Santo, where he took 1st place in the Webster-Roubaix Road Race and second in the U23 National Time Trial. Bobby graduated this year with a degree in mechanical engineering.

Ryan Taylor

Ryan comes from Prince Edward Island in Canada. He has had notable success in elite races such as the Tour of White Rock and Tour de Delta. Ryan will be putting his big engine to good use for the team and driving the pace of the races both on the flats and on climbs.

Dean Tracy

Dean has devoted much of his riding attention to the track and racing under the skillful eye of coach Des Dickie. Dean won his first National Championship in 2008 in the team sprint and will continue to grow into one of the best sprinters the US has to offer.

Aaron Tuckerman

Aaron, a New Zealander who makes him home in Portland, Oregon, comes to the Land Rover-ORBEA team from a successful season with Jelly Belly Pro Cycling Team. Aaron's breakout season was in 2007 when he won the opening stage at the Tri-Peaks Challenge, taking 3rd over all in GC. Aaron will bring his experience and aggressive style to this young team.

Roman van Uden

Roman has been growing consistently and proved to be a strong performer throughout the 2008 season. Roman has a knack for sprinting, but is also a solid climber who has an aggressive style and knows when to get into a break. Roman took 2nd in the 2008 New Zealand U23 National Criterium Championship.

Aaron Tuckerman at Redlands.
Photo - Lyne Lamoureux,
www.podiuminsight.com



Team Land Rover-ORBEA is another team that we are proud to be associated with. So if you see any of them out on the road or at your races, don't forget to say hi and offer up your support.

Team Land Rover - ORBEA Feedback

"While racing in some of the hardest road races in the country, our riders need every advantage they can get. As for nutrition, we couldn't ask for a better group of products as Hammer Nutrition. The energy products, recovery drinks, and supplements are simply the best on the market."

David Godfrey,
Manager Land Rover-Orbea pro cycling team

"While being a Professional for several years, I have used several different nutrition products over the years. Hammer Nutrition is by far the best I have ever come across. My only regret is that I didn't start using it earlier!" Evan Elken, 5 year pro

"I have had cramping problems my entire cycling career, now that I have started using Hammer Nutrition's Endurolytes, I have been cramp free all season. It truly is amazing to find something that really works against cramps!" Aaron Tuckerman

"I started using Perpetuem on all my races and training rides over 3 hours and can really tell my power after 3 hours is drastically improved over more sugary drinks." Carson Miller

"I have tried several multi-vitamins in the past but the Premium Insurance Caps are the first that I can actually tell work. If I run out and miss a few days, I can tell I am missing something." Logan Hunn



Randy rides the Highline Hammer
in July of 2008.
Photo - Greg Elizondo

Endurance Racing

Another perspective on injury and recovery

Author : Randy Profeta

As contrary as it sounds for those of us who specialize in endurance events where pacing is everything, our lives can sometimes move at a frantic speed. Not only must we meet the daily responsibilities of managing a career and raising a family, our lifestyles also include a dedication to training and to putting in the hours in pursuit of athletic excellence. We are focused on maintaining a healthy weight, eating properly, and meeting our body's needs for vitamins, minerals, and other nutrients to help us to stay active, competitive, and healthy. This, I would find, pays off in more ways than ending up on the podium.

While most of us would like to think that we are invincible, injuries unfortunately happen. This past year, I found out that I was not exempt.

As an amateur athlete who has reached (actually exceeded) the "Master's" category age bracket, I have been very fortunate during my life to avoid many of the illnesses and injuries that can affect a 50-plus "experienced" adult. I attribute my good health to my lifestyle, to competing in endurance events, and to the fact that I chose my parents well. As compared to what many casual observers believe, my participation in endurance events has actually had a positive effect on my well-being; it has not been a detractor.

This article is somewhat of a departure from my regular writing style and describes a personal challenge and a

triumph of a different kind.

The details

On August 9th, 2008, I was in between races. I had just returned from Canada where I had one of the best races of my career. Even though I did not win my class, I was able to battle back from an 8th place start to a second place finish in the 24-Hour World Solo Mountain Bike Championships. My success was in no small part due to my determination and perseverance. I would like to believe that my training also played a small part in my performance. I know that Hammer products played a huge role in my success as my nutritional needs were completely addressed!

On that particular Saturday morning in August, I was doing my first long training ride after returning home: a 55-mile out-and-back ride on the mountain bike with about 4,000 feet of elevation gain. I was riding with friend and fellow Hammer athlete Tim Vangilder. Tim also heads up a local band of bike racers called Troupe Racing of which I am proud to be a team member.

Tim and I exchanged small talk and we traded the lead as is common during our training rides as we pedaled at our own paces. Our destination was Sierra Peak, one of several summits located along the Santa Ana mountain range. The ride was mostly uneventful and to this day, I can recall all of the details as if I did the ride with Tim just yesterday.

We were riding on one of the local paved

two-lane roads that connect the mountain bike trail networks when a pickup truck got dangerously close to where I was riding. I was riding in a marked bike lane one moment...and then the lights went out.

Three days later I awoke in the hospital with a few broken fingers, some road rash, and a head injury. Only now am I finding out many of the details of the three days that I spent in the hospital and the two weeks following my hospital stay in a rehabilitation center. Let's just say that I had a severe concussion. Fortunately, surgery was not required. I am very lucky, indeed, to have survived. I also believe that my fitness level and my endurance training played a big part in my recovery. So do the doctors. Because I could not provide any information about what had happened to me and there were no witnesses to my accident, I was subjected to a complete battery of tests as the doctors wanted to rule out a stroke, seizure, or heart attack as possible causes for my first hospital visit. The results all confirmed that I was in excellent condition other than the nasty bump on the head and some scrapes.

This article is not intended to offer medical advice and in no way will substitute for the guidance provided by medical professionals. I want to share some of my observations about my recovery from a somewhat uncommon injury, and the burning desire that still burns within me to compete. My accident has not diminished my desire to ride. It was an unfortunate event and one that could have happened while riding my bike, crossing the street, or traveling to work.

Recovery and training

As soon as I was awake and able to

see RANDY on page 37

RANDY from page 36

comprehend verbal commands, my physical therapy started. As luck would have it, the rehab center had a stationary bike. With my wife, Mary Ann at my side and still unable to talk, I was placed on the bike. The therapist wanted me to go for 10 minutes. Heck that is not even a warm-up! As the therapist and my wife watched, I started messing with the settings on the stationary bike. The therapist looked at my wife not knowing what to make of my actions. My wife laughed; she knew what I was up to; I was increasing the resistance. My wife would later tell me that it was at that instant that she knew I would be fine! The wheels were spinning: If I was going to be bored on a stationary bike, I wanted to make it worth my while.

As soon as I was home, my son, Dan, and my wife set up the trainer in our living room. After a three-week "rest period", I needed to log some miles, correction: seat time. So, I would wake at 5 AM and get on the trainer and "ride" for an hour or so. It felt good to clip in and be seated on my bike. I could not wait to get back on a "real" bike. Unfortunately, my MD had other plans. Apparently, suffering another concussion would not be a "good thing" soon after incurring a head injury, so I was restricted from any sports or activities that required me to wear a helmet or pads. My balance was also in question. So it looked like I'd be on the trainer for a while, or I would need to find other ways to train.

Tim came over and we rode the bikes (trainers) together. Teammate and friend close Monica would take me for hikes on some of our local trails. I found out why triathlons would most probably not be in my future competitive schedule: I still hate running with a passion! But run I did.

Running and spinning on the trainer were getting old, however. So, over the Christmas holidays, I decided to give myself a gift: I got on the bike for the first time since August and rode around the neighborhood. I wanted to see if there would be any issues. You know, the old saying is correct: I found that it was just like riding a bike.

My strength was still good but my endurance level was not. The next day, I resumed my road training, and started

entering rides and workouts into training log. I will not bore you with the details of my low-mileage rides, but since that time, I have been increasing my efforts as well as the time and distance.

Check with your doctor first

One thing that I have found is that there is a lot that is not understood about injuries like mine. Some of the doctors that I had consulted with said that my cycling days may be over; some said that my endurance would not be very good so I should consider another form of competition; some even said that bike riding would be out of the question because of balance issues. One common thread: every doctor recommended physical activity. One of my doctors encouraged me to continue my training and to resume my normal activities. I do not think that this particular doctor would consider 24 hour races or ultra-endurance events "normal".

In the final analysis, I need to have a certain quality of life which, for me, has been defined by a high level of outdoor physical activity and by competition. So, I started re-engaging. Like I have done for many years, I got the calendar out and started planning my year. In March, I resumed doing organized rides when I rode my singlespeed with some friends in a 25-mile mountain bike fund raiser. And I started training in earnest. The one thing about racing is that it gives purpose to your training. So now I have some goals to reach and milestones that must be met before I can race.

Base miles

Because of the great weather we are blessed with in Southern California, I really never knew what it was like to stop racing during the "winter". I never really had to develop a training program that focused on building a base. In most cases, I would "race into form" and make sure that I peaked for my target events. Since resuming my riding, my focus has been on

doing LSD miles (long, slow, distance). I wanted to build a strong base and work on speed and anaerobic fitness later on.

During my rides, Perpetuem is still my choice for rides over two hours. A second bottle with HEED takes care of my hydration. Whether it is due to my head bump or simply just because I have been away from riding for several months, my timing is a bit off when it comes to hydration and nutrition. So, to prompt me to drink regularly, I set an alarm on my Heart Rate monitor to chime every 12 to 15 minutes so that I will consume about 20-25 ounces of water and about 250 calories each hour.

One of the supplements I find extremely useful is Anti-Fatigue capsules. Once, primarily used during long races to fight off ammonia buildup,

I find it helps with fatigue too! I can recall reading an article that AF caps contain Magnesium Potassium Aspartate, one of the same ingredients found in prescriptions given to people suffering from chronic fatigue. Since I was told that fatigue is a trademark of the type of injury I sustained, AF caps have now been a regular supplement for me before and during many of my workouts.

Intervals

I am just beginning to add some interval training, sprints, and hill repeats to my daily routines. For these shorter, yet intense workouts, HEED and some Hammer Gel in a 5 serving flask are what I am relying on.

As an endurance athlete, explosive speed is not what I am looking to develop. Building my anaerobic capacity and improving my pulmonary abilities (how well I move air in and out of my lungs and how well oxygen enters my body) is what I am after.

Endurance racing pays off

As I met with therapists and neurologists

see RANDY on page 39

"It's easy to have faith in yourself and have discipline when you're number one. What you got to have is faith and discipline when you're not a winner."

- Vince Lombardi



Volunteers spend time putting together the Violet Crown Age Based State Crit "goody" bags.
Photo: John Collins

2009 Events

We've got a ton of events happening in the upcoming months, far too many to list here, so check out the Hammer Nutrition website (which we're constantly updating) to see what races we're sponsoring. Here are just some of the great Hammer Nutrition-sponsored races coming up in the next couple of months:

- July 5-10 – Breck Epic (www.breckepic.com)
- July 11 – Race Across Oregon (www.raceacrossoregon.com)
- July 11 – Siskiyou Outback Trail Runs (www.siskiyououtback.com)
- July 11 – Keweenaw Trail Running Festival (run.greatlakesendurance.com)
- July 12 – Boulder Peak Triathlon (www.5430sports.com)
- July 13 – Badwater Ultramarathon (www.badwater.com)
- July 18 – Musselman Triathlon (www.musselmantri.com)
- July 18 – Spirit of Racine Triathlon (www.hfpracing.com)
- July 19 – Napa-to-Sonoma Wine Country Half Marathon (www.napa2sonoma.com/site3.aspx)
- July 25 – Montana's Swan Crest 100-Mile Run (swancrest100.com)
- July 30 – Mountain R.A.T.S. (Race Across The Summit - geminiadventures.com/mtrats.html)
- August 1 – Burning River 100 (burningriver100.org)
- August 8 – Mt Disappointment Endurance Runs (www.mtdisappointment50k.com)
- August 9 – 5430 Long Course Triathlon (www.5430sports.com)
- August 15 – Utah Half Iron Triathlon (www.racetri.com)
- August 16 – Pigman Triathlon (www.pigmantri.com)

- August 16 – West Plains WunderWoman Triathlon (www.emdesports.com)
- August 22 – Lean Horse Ultra Marathon Hundred, Half Hundred, & 50K (www.leanhorse.com)
- August 22 – No Sweat 12/24 Hr Adventure Race (www.toocoolracing.com)
- August 23 – High Cascades 100 (www.mudslingerevents.com/high-cascades-100)
- August 23 – Freshwater Trust Portland Triathlon (www.portlandtri.com)
- August 30 – Half Vermont Journey (www.rushtonsports.com)
- August 30 – Tour of Southern Utah (www.planetultra.com)
- August 30 – Santa Rosa Marathon (thesantarosamarathon.com)

Believe me, this is just a fraction of the events that we sponsor... the list goes on and on and on! As I am fond of saying, "If it's 'endurance', chances are Hammer Nutrition sponsors it." Since this is a short article about events, I have to take this opportunity to thank Kendra Powell, who does the majority of the work involved in managing the 2200+ events that we sponsor annually. Without Kendra's thorough attention to detail, it would be pretty much impossible to keep track of all of the events that we sponsor, let alone get the product to the race directors in a timely fashion. Thanks Kendra... you're a life saver!

We're excited to be a part of each and every one of these events, as well as those we didn't have room to list, and we hope that if you're in the area you'll come out and support them too. You already know what will be on course!

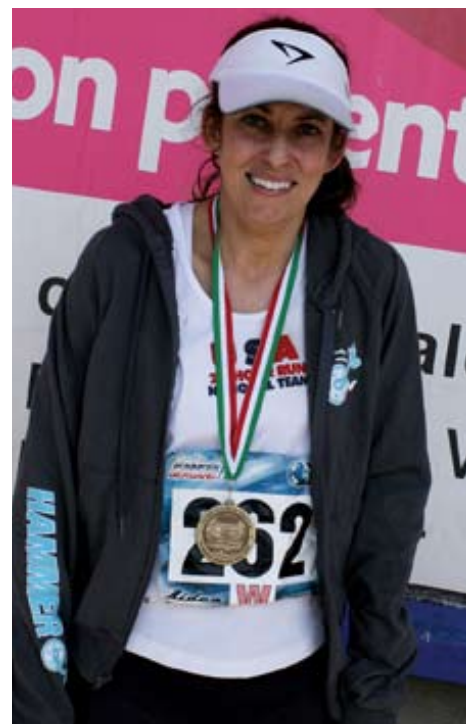
Hammer Nutrition Ultra Runners in Italy

In the last issue of Endurance News we told you about the strong Hammer presence on the U.S. National Team competing at the World 24-Hour Run Championships. Below is a testimonial from Jamie Donaldson who finished 4th among women, first among all Americans, male or female, and 20th overall. Congratulations Jamie on an awesome race!

I just got home from Italy and what an amazing event! The US Women's Team placed the highest ever in history with a silver medal! Here is a link to a brief report: www.americanultra.org

I was fueled 100% by Perpetuem, Hammer Gel, and Endurolytes. It was hot there during the race and a lot of the athletes had many fueling issues. I adjusted my electrolytes and had no problems.

Thanks again for everything!
Jamie



RANDY from page 37

in the early days of my recovery, I was told that I would tire quickly and that my endurance levels would be low as I performed everyday tasks. This proved to be the case in the first few months after being released from the hospital. My body wanted to recover from what it had just been through. While I would like to think that never compromised my rest during recovery, I knew that it was my endurance training that helped me get through several of the tough days since I knew what it was like to continue moving forward even when my brain told me to stop. I never took chances; I just knew how to maintain my focus and to keep making progress when I was tired.

The calendar : Highline Hammer

In 2007 and again in 2008, I attended the Hammer Highline. I have found that this five-day training event provides me with a way to gauge my endurance fitness and helps me to determine how well my training has progressed to that point. It is also a great way to meet like-minded individuals that share my passion for endurance sports and to interact with the fantastic staff at Hammer Nutrition.

Registration opens up in January and usually fills up quickly for the summer event. In years past, the only thing I needed to do was clear my calendar. This year, however, I was just returning to the bike after my unplanned layoff. There was some hesitation on my part to signing up for the 2009 Highline. But after thinking about it, the Highline will again serve as a gauge just as it has in past years. Moreover, the Highline allows me to say "thanks" to all of the great people at Hammer that have supported me as I recover from my injury. It also gives me another event to train for. I cannot wait!

Focus and desire

I find that it is easy to become frustrated during the recovery process as I am working hard to simply regain the fitness level that I previously had. I am continually comparing my previous performance levels to what I am now able to achieve. It is not difficult to slip into the doldrums. So, like doing an endurance event, I work through the tough times by focusing on the desired result. It is pretty easy to despair at 3 AM as rain is soaking you to the bone

during a race. This is where focus and desire can help you get through. Rather than dwell on the negatives, I stay focused on the desired outcome and the fact that I am preparing for a race, bearing in mind that my racing career was supposed to be behind me. I now look for the positives as I train. While I may not be in the lead group doing the fast club training ride, I still finish before many riders.

As I mentioned previously, it is good to have goals and to be training for several events. My hope is that I can still be competitive.

Baby fat

Over the winter months it is not uncommon for us all to put on a few fat pounds as winter sets in. This is not an uncommon occurrence and is a biological occurrence as our bodies want to add some fat stores to prepare us for winter. For me, however, it has been somewhat different.

I had gained a few pounds during my recovery in the hospital due to inactivity and also due to the fact that I could not remember eating just 15 minutes before. My short-term memory had been affected. I shed the extra pounds very quickly after my release. Now, some of the weight has mysteriously reappeared as my appetite has returned. I am told that this is somewhat normal after a head injury. So, along with exercise, portion control is a must. Hopefully, Appetat will help me curb my appetite. As I have been studying the ingredients, I have found some interesting benefits to Chromium Polynicotinate. My research shows that it helps insulin regulate blood sugar levels and that supplementation tends to decrease blood sugar in people with high blood sugar levels and raise the blood sugar in people with low blood sugar levels. It also improves the uptake of cellular glucose for energy production and is believed to inhibit the synthesis of new fat from carbohydrates. What this means is that with exercise, my body will tend to burn stored fat as a primary fuel.

Long endurance miles also help burn fat calories. So, returning to my multi-hour training rides should start to pay off in a few months.

My target race

I qualified for the 2009 World Solo

Championships in Canmore as a result of last year's podium finish. So, this year, I plan to do the race again. This year, however, it is racing with a purpose. Many of you know of pro rider Saul Raisin, who crashed while during a race on April 3, 2006 with his team, Credit Agricole. He was in a coma and not expected to survive his severe head injuries. And if he did survive, his life would be profoundly affected. The story of his recovery is miraculous and has served as an inspiration during my own recovery. As I read his book, *Tour of Life* (written by Saul with David Shields), it was like recounting my own recovery. Since his recovery, Saul and his parents, Jim and Yvonne, have started the Raisin Hope Foundation. The Foundation's focus, among other things, is to support the survivors and their caregivers who are living with traumatic brain injuries.

I have been very fortunate in many ways. Now it is my turn to help and to bring hope to the survivors that living productive and active lives is again possible. I hope to raise funds for Saul's organization by competing at the Worlds, a feat I thought was impossible just a few short months ago. My effort is dedicated to all of those who have been affected by brain injuries, and in some small way, provide Saul's organization with some support. For more information, please drop me a line at randyprofeta@cox.net and I'll share the details.

Thank you Hammer!

For almost a decade, Hammer products have played a big role in helping me achieve my fitness and competitive goals, and have become a part of my life. For several years, I have been fortunate to count on Hammer Nutrition as a supporter. After my incident, I made my sponsors aware of my injury and my anticipated prolonged recovery period. I would understand if sponsors decided to offer their support to some other athlete. Hammer stayed with me and offered me continued support in 2009. The staff has been so understanding and supportive that I am a customer for life!

This year may not be my best year as far as podium visits, but I am sure going to try hard. Count on it!

"Energy and persistence conquer all things." - Benjamin Franklin



Competitors take off at the beginning of the Mohican 50k. Photo - Jim Tanner

The Least Understood Aspect of Peaking

Author : Tony Schiller

I encountered the phenomenon during my first year of serious triathlon training back in 1986. It was widespread among most every triathlete I knew including myself but it took another 5 years to realize what was really going on. I'm talking about the dog days of summer that affect so many endurance athletes – especially triathletes – and seem to show up with almost clockwork precision every July.

The most obvious sign of this is seen at swimming pools all around the country. Show up on the deck at 5:55 AM for a master's swim during March or April and you're likely to see half the group already stretching out and joking with eagerness to jump in and work hard. For the next hour each lane is jammed with a constant thrashing and kicking sound broken only by the occasional peer to peer encouragement heard between intense interval sets. Most stay right up to 7 AM and several more keep going for extra credit yardage before finally racing off to work.

But return for the same group's mid July swim and you'll see something quite different. Most obvious is the swimmer count being down to about half its spring peak with the stalwarts groggily straggling in one at a time in the minutes after 6. The sound of eager chitchat heard during stretching just months earlier is now mysteriously gone. Instead, a new procrastination ritual has taken over – the dangling of feet in the water for several minutes while

debating how much to downgrade the prescribed interval workout or whether to just do a slow distance swim instead. A hodgepodge of choices win out as the former group swim is now more a shared pool time until about 6:45 when the exodus to the showers begins.

It's not that the season is winding down. To the contrary, most of the present – and the absent – still have races coming up and many of those

The reason mental energy can run low now in July is you know you're pretty much 100% fit and there's little room to physically get better.

are their most important of the year... an August national championship, a September Ironman, or perhaps even the October granddaddy in Kona. So what gives? This can't be how these athletes envisioned the buildup to their big race looking last spring, can it?

Could this be a classic case of overtraining? Well, maybe, maybe not. At least from my experience, the cause of most early season fizzles is more mental than physical. If the biomechanics of your physical movement are sound, you have a solid nutritional program and you are free of injury, there's really no reason your body can't sustain high levels of training volume and intensity for several months of the year.

The real challenge is managing your mental energy for that long. Here's

the thing... stuff happens. Life is full of surprise obstacles and unplanned stressors to throw off your season. The biggie though is the burden of high performance expectations you place on yourself. It all can lead to the mind's high energy for the season wearing out long before the body's does.

If this were March, I'd write about keeping your competitive spirit caged up for another couple months. More than likely you wouldn't have listened though. You'd already had that energy caged up all winter and it felt so good to finally let it loose again. As stated earlier, it wasn't that your body couldn't take the intensity then and still be strong now. It's that going to that high place got your competitive juices flowing months ago.

Those juices trigger every bone in your body that race season has arrived and soon your body was ready for peak level performance.

The reason mental energy can run low now in July is you know you're pretty much 100% fit and there's little room to physically get better. Whereas your mind was easily able to dismiss that early season "off" race due to not being 100% fit, now that excuse is gone and the "off" race sets all sorts of negative mental wheels into motion. What's wrong? Have I peaked out? Why am I going backwards? I don't seem to have guts anymore?

Put another way, you're much tougher on yourself now when there's such a small

see TONY on page 41

TONY from page 40

margin for error than you were during spring when every measure of your performance was skyrocketing upwards. It's counterintuitive but the reverse should have been the case. Your spring surge was a given. But now after doing such a marvelous job getting your body to peak form, it only stands to reason that you'll bounce back and forth a bit before your final taper does its magic.

So cut yourself a little slack.

Try following major league box scores in the paper the next couple weeks... see how many league leaders you can find who are going through a mid-season slump. Watch to see how they work through it and come out of it. Keep watching to see how many of them surge in September and into the play-offs. The secret of great players is to trust they'll come of it so they don't need to do anything different physically. They mentally give themselves a break by letting go of the need for perfection and just keep battling through it... they

know this too shall pass.

You can do the same. Here are some ideas to help you work through a mid season swoon so you can quickly regain your form and surge at season's end:

- 1) **Give yourself an off day** – sleep in and enjoy it
- 2) **Skip a race** – don't go if you feel flat – or go and volunteer instead
- 3) **Beware of and avoid the energy robbers** – the training partner who is now a "draining" partner
- 4) **Don't be the energy robber** – if you can't pick them up don't bring them down
- 5) **No more weekday heroics** – save those epic training days for the last few races
- 6) **Break up the routine** – try new courses, new pools, new lakes, go off road, go inline skating, go hiking, go paddling, go fishing or golfing

7) **Be a leader** – when others are dragging be the one who pumps everyone up

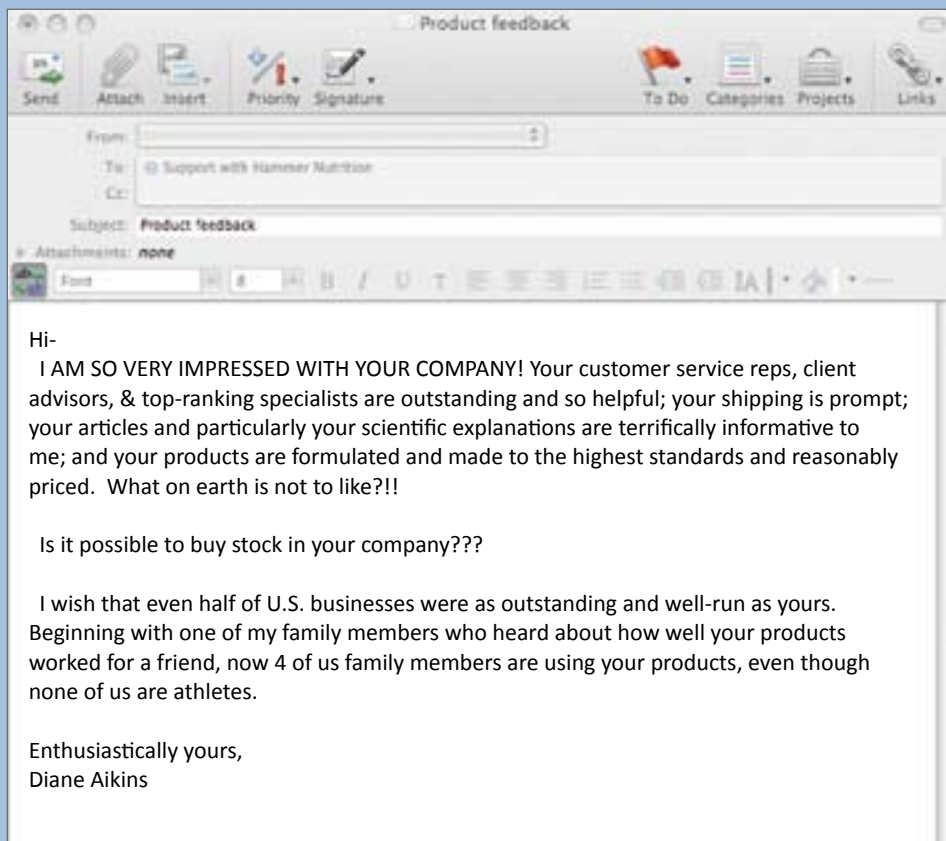
8) **Make it fun** – find a way to laugh and smile as much as you did last spring

9) **Trust yourself** – you still have it so expect good things and work through it

10) **Pay attention** – use this time to master how you mentally manage your season

Rather than fearing and dreading this time, turn it into the defining moment in a great season. Then learn from it and you'll be a stronger competitor in the future.

2009 marks Tony Schiller's 37th consecutive year of racing and trying to figure out the grand mystery of peaking perfectly at the big race. With 9 ITU world championship medals (6 gold) in 10 starts, he's doing alright. Tony is a motivational speaker, coach and director of the MiracleKids Triathlon.



This testimonial was unsolicited and has not been modified.

Dear Diane,

We appreciate your feedback! As our way of saying "thanks" we'd like to give you 10% off your next order with us. Keep spreading the good news.

The Hammer Nutrition Team



Hello from HQ!



ENDURANCE FUELS
& SUPPLEMENTS



Athletes ready themselves at the start of the 2008 Ironman World Championships. Photo - Angela Nock

Fortifying with Iron

Author : Shane Alton Eversfield

Just for bragging rights? John Howard, founder and finisher of the 1978 inaugural Ironman, claims that finishing an Ironman gives you bragging rights for the rest of your life. Is it lifetime bragging rights that inspire the tens of thousands each year to endure 140.6 miles? What about multiple finishers? Do we prevail year after year simply for the right to say, "Yeah, I did it" when we publicly display the Ironman logo – the "M-dot"? Even this right was recently "diluted" with the advent of the Ironman 70.3 races: Go half the distance and still get the M-dot.

The Almighty "M-Dot: To be sure, that M-dot is reverently respected world-wide; yet it is also one of the most lucrative trademarks of all times. The success of that trademark may stem in part from savvy marketing and vigorous protection; but there is something far beyond the desire to be affiliated with a brand name that drives us to devote so much time and money, so much physical, mental, emotional and spiritual energy to making the full-iron journey. What makes the iron-distance race such a powerful highly respected and globally recognized rites of passage in our modern world?

Some regard iron-distance triathlon as a devastating, life-threatening abuse. Others hail it as the greatest single-day endurance event ever – a transforming, empowering life experience. Is iron-distance training and racing good for us or bad for us? Life-long bragging rights and showers of adoration may be good

medicine for one's self-esteem. After all, lots of people feel more reverence for an Ironman than say a Doctor or a General. Our egos relish any accomplishment that distinguishes and elevates us, that associates us with an elite echelon. Glory can be coveted even more than money. We are drawn to glory like moths to a flame. But there's a lot more to it than the glory that comes with crossing the finish line. Let's backtrack 140.6 miles to the start.

Day of Reckoning: As attracted (how about obsessed?) as some of us are to the iron experience, when we show up at the shoreline for our very first Ironman, we are showing up for a death march. Never in our lives have we covered 140.6 consecutive miles in a single day – apportioned as they are to swim, bike and run. We are venturing into unknown territory, diving into a vast sea of uncertainty. Most of us are trembling with fear.

Fear and Uncertainty: Why the fear? Fear is our conditioned response to uncertainty. Like virginity and death, we have no idea what lies on the other side of that finish line. We can hear it from countless others beforehand – and even learn much about how to train and prepare – but we are drawn to the flame. We thirst for the iron experience first-hand; no one else can traverse those 140.6 miles for us.

The difference between iron and half-iron tri's is more than just another 70.3 miles. Iron distance introduces us to a whole new level of uncertainty. As we train to complete our first races at shorter distances, we can appease much

of this fear of uncertainty with workouts that are at least as long in time and/or distance as the race we are training for. Even at half-iron distance, we can placate fear and uncertainty by over-distance training each of the disciplines individually – even collectively, for those of us who are really obsessive-compulsive. However, that nagging uncertainty of "Can I go the 140-point-6 distance?" will not be resolved before that first Iron. After months or even years of training, the question remains unanswered at the shoreline, early on race morning.

The focus of training for the first iron – and often for the second, third or fourth – is to appease that fear of uncertainty, to keep the intimidation at bay. We work to smother that vast gulf of fear with thousands of miles, hundreds of hours, millions of calories. In this process of fending off self-doubt and anxiety, we may even jettison much of our lives as healthy human beings. At the very least, we often take to managing our time with a scalpel, a microscope and a crowbar – cramming as much as we can into 24.00 hours.

Meeting the Quotas: According to W.T.C., the average Ironman triathlete swims 12,000 yards, bikes 230 miles and runs 48 miles in a typical training week. This weekly output endures 7 months. Iron overdose doesn't necessarily come from racing too many iron-distance tri's; it often stems from our obsession with appeasing the fear of uncertainty through excessive training. Riding 112 miles every Saturday morning – rain or shine, fatigue-be-damned – for months on end just to assure oneself, "Yeah, I can still do it" is not an efficient and effective way to train for the iron-distance. This kind of obsession leads to long-term burnout, family and

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occupational neglect and overall misery – not to mention a slow bike split on race day. (I confess, I speak from experience!)

Metabolic Training: Don't get me wrong - an aerobic base is essential. Assuming reasonable physical health, the first crucial tool for iron-endurance is a strong metabolic capacity – a body that is efficient at burning fat and conserving glycogen for long duration at an appropriate intensity. It takes patience and persistence to build up capillary and mitochondrial density and strengthen the heart and lungs. Aerobic base should absolutely be the focus of novices.

Nutrition is also a vital part of developing that metabolic efficiency and endurance. This can be the easiest part! Hammer Nutrition has already figured that one out for us ahead of time. I follow the guidelines in "Fueling for Success". Simplicity is key: For the bike: Two 3+ hour bottles of Perpetuem, with Endurolytes Powder mixed in, according to the heat. One is on the bike at the start, the second bottle is in my special needs bag. (I duct-tape the tops on these, so I won't lose my precious fuel if I drop one.) I carry extra Endurolytes Caps on the bike, as well as Anti Fatigue Caps at one per hour, and a few Hammer Gels. I begin with 10-12 ounces of water in my flask (separate from my fuel) and replenish at each aid station with just enough to get me to the next. (Why spend thousands on a high-end lightweight bike and then carry pounds of water?) On the run: Again I keep it light and simple. I fuel on Hammer Gels, carrying 4-5 out of transition, then stocking more in my special needs bag. I also carry a pill flask with Endurolytes Caps and Anti Fatigue Caps. Just water at the aid stations, thanks. And always, Recoverite at the finish!

The Next Level: Once we have honed our bodies into lean, mean, fat-burning machines, we can shift the focus from the expansive foundation of base training and nutrition strategy. Doubling base miles will not double our speed or even our metabolic endurance. More likely it will damage our joints, ligaments and tendons and chronically fatigue the endocrine system – that potent chemical arsenal that we draw on for great performances.

Where do we go from here? Sure, we

can dutifully swim, bike and run the quantities WTC has deemed average for the successful finisher, attempting to satisfy our uncertainty. However, to truly master the iron athlete lifestyle, we must train intelligently, creatively and intuitively. Train brilliantly, and we transform the quality of our workouts – be they breakthrough, base or recovery – so that we train less with better race results. Paramount to our iron athlete lifestyle, our training must enhance the quality of our lives as whole human beings. There is no mastery if we enslave ourselves to triathlon training just to placate our fear of uncertainty.

Breaking the "Fear-Uncertainty"

Bond: The key component to "iron mastery" is transforming our relationship with uncertainty. Instead of responding in fear, we must welcome uncertainty as the sweet nectar that sparks our aliveness – both in athletic performance and in our mundane everyday lives. Here in the U.S. – more than anywhere else – we invest lots of money, energy and time attempting to eliminate uncertainty from our lives, grasping for security. Ultimately all of these attempts will fail. Pension plans, diverse financial portfolios and health insurance will never insulate us from uncertainty in our lives. Change is inevitable. Everything is impermanent – including our human lives. Without the "kick in the ass" that uncertainty, mystery and change bring to our lives, we stagnate. If we know ahead of time exactly how the race will turn out, or how our lives will progress and end, will we bother training – let alone get out of bed each day? Without uncertainty, we're as good as dead.

Iron distance training and racing empowers us to embrace and welcome uncertainty, rather than recoil and retreat from it. This empowerment can extend beyond athletics to the vast arena of our lives as whole, healthy human beings.

The true mark of a seasoned iron-distance athlete – one who can sustain this as a healthy, balanced lifestyle, regardless of how fast or slow the finish time – is the ability to remain calm, patient and present with fear, doubt and uncertainty. On the exterior, iron training may appear as excessive

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Leo Fohl approaches the finish at the
USAT National Duathlon Championship in
Richmond, Virginia.
Photo - Jo-Ann Fohl

"Vitamins Found to Curb Exercise Benefits"

Our response to this article

Author : Steve Born

Not surprisingly, another article dismissing the use of nutritional supplements, and/or suggesting they're in some way not beneficial and perhaps even harmful, has hit the headlines. The latest is an article that appeared in the New York Times with the alarming title: "Vitamins Found to Curb Exercise Benefits."

I (Steve) have yet to review the study in its entirety but as the result of reading this article I am not persuaded one bit by the conclusions that were drawn from this one study. I am in full agreement with Andrew Shao of the Council for Responsible Nutrition, who stated in the article, "Most available evidence points to the opposite conclusion, that antioxidants benefit health by reducing oxidative stress."

There is simply an overwhelming body of research that shows the beneficial effects of antioxidant supplementation. In one single article alone, Dr. Bill Misner's "Longevity's Relationship to Genetic Signals & Antioxidants" (available on the Hammer Nutrition web site), there are 173 research papers listed showing the beneficial effects of antioxidants.

There are a couple of issues that I have with this study:

- Only vitamins C and E were used.

As most everyone knows, antioxidant nutrients work synergistically and in cooperation with each other, suggesting that for the best benefits a variety of antioxidant nutrients/compounds should be consumed.

- Only "moderate doses" of these vitamins were used. Additionally, it doesn't state whether synthetic vitamin E (dl-alpha tocopherol) or natural vitamin E (d-alpha tocopherol) was used.

- The fact that moderate doses of vitamin C and E didn't show an "improvement in insulin sensitivity" or "almost no activation of the body's natural defense mechanism against oxidative damage" doesn't prove that these vitamins "short-circuited the body's built-in antioxidant mechanisms." To me, it doesn't prove anything, certainly nothing negative.

- To suggest that antioxidants "cause certain effects that inhibit otherwise positive effects of exercise, dieting and other interventions" is, in my opinion, really quite a stretch, similar to making a generalized statement that "food is found to cause heart disease," basing that conclusion on a single study of cholesterol.

The fact is that the body's endogenous antioxidants—glutathione, superoxide dismutase, and catalase—become depleted via the aging process... that's

a problem in and of itself. Additionally, these antioxidants, and the benefits they provide, can very easily be overwhelmed by the amount of free radicals produced even from moderate exercise. Research has shown that athletes use 12 - 20 times more oxygen than sedentary people—in the words of Dr. Michael Colgan, "That's a ton of free radical potential." Nutritional scientist James South wrote that excess free radicals "are capable of damaging virtually any biomolecule, including proteins, sugars, fatty acids, and nucleic acids." Dr. Misner writes, "Oxygen has the capacity to be both friend and foe. When energy fuels are metabolized in the presence of O₂, 5% of them create molecules that contain an odd number of electrons. If free radicals are not neutralized by on-site antioxidant body stores immediately, tissue damage occurs to absolutely every cell membrane touched by these imbalanced molecular wrecking machines. Some theorize that soreness and stiffness result because free radicals and waste metabolites build up during either prolonged or intense exercise. The more volume oxygen that passes into our physiology for energy fuel metabolism, the more increased free-radical-fatigue symptoms may be experienced."

Needless to say, the negative effect of free radicals is very real, it is arguably the most embraced theory as to the cause of age-related degenerative diseases, and an overwhelming amount of research—enough to literally keep one occupied for months, if not years—has shown the beneficial effects that antioxidant supplementation provides in neutralizing the damaging effects of free radicals. This one study/article does not persuade me to change my antioxidant supplementation regimen at all.

Dr. Bill Misner adds:

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amounts of swimming, biking, running and strength work. But the real training is happening inside, as we cultivate and strengthen a calm-still-silent, open-empty-infinite, deep-serene-and-intimate space of awareness and presence during those long tedious hours of swimming, biking and running

How do we conduct this inner training? As we are training our bodies to function efficiently and gracefully for the iron distance, we can simultaneously train our minds to function efficiently and gracefully in the presence of uncertainty and to curb our fear response. In training (and in life), we do experience fears, doubts and anxieties. It's no use trying to conquer or eliminate them either. The most effective way to deal with them is to befriend them. We can regard fears, doubts and anxieties simply as byproducts of mental fitness training – just as lactic acid is a byproduct of physical training. Mentally as well as physically, we strengthen our ability to process these byproducts at progressively higher levels of intensity. During interval training, we push our limits then pause for recovery. Similarly, when we recognize our fear response, we can pause, breathe deeply, disengage and relax – reminding ourselves that uncertainty is a wonderful asset in our lives that stimulates our curiosity and heightens our sensitivity and

awareness. Uncertainty is precious fuel for brilliance!

It's Worth Repeating: The real training happens inside, as we cultivate and strengthen a calm-still-silent, open-empty-infinite, deep-serene-and-intimate space of awareness and presence during the long tedious hours of swimming, biking and running. The most effective way to focus on this inner training, to cultivate and strengthen this inner space, is through conscious breath. As we abide in this mental, physical, emotional and spiritual space, we are highly capable of embracing and enduring all of life's challenges. This is what I call spiritual fitness.

Spiritual Fitness: As Ironmen and Ironwomen, we are distinguished in our ability to go the 140.6, but we are by no means elite in our "spiritual fitness". Every single human being experiences the three conditions of human existence: suffering, impermanence and selflessness. Every human being – regardless of physical prowess – has the infinite potential to develop spiritual fitness, to embrace and transform these conditions into triumphs.

In comparison to those who live in war-torn countries, under oppressive governments, or face poverty, starvation or torture, our lives are cake walks – regardless of how many Ironman finishes, or how fast. Those who refuse

to feel victimized by strenuous and oppressive conditions are the true spiritual heroes. All humans are equal in our capacity for spiritual fitness, regardless of genetics or education. Each of us must make the choice day-by-day, minute-by-minute to train our spiritual fitness. However, unlike completing an Ironman, in our day-to-day ordinary lives we are not guaranteed glory, recognition, medals and finisher's swag for our progress. True happiness and satisfaction arises in our hearts.

The Iron lifestyle can be destructive and self-absorbed or it can be empowering and magnificent. To discern the fine line between these two requires absolute integrity, self-honesty and clear choice in each and every moment of our lives. Are you up to the challenge?

Shane Eversfield, 2008 USAT All American, author of "Zendurance, A Spiritual Fitness Guide for Endurance Athletes" and over 20 articles (www.zendurance.net), offers bike fitting and cycling technique consultation through Catskill Mountain Multisport, New Paltz, NY: 845.633.8720 or www.catskillmountainmultisport.com. He also coaches swim technique for Total Immersion Swim: 845.255.4242 or www.totalimmersion.net. Contact Shane: ironzen@hotmail.com

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Steve's summary says it all. Not much to add except to further simplify the equation.

When a typical endurance athlete produces 12-20 times free radical byproducts from increased metabolism, those waste byproducts increases parallel depletion of muscle-stored glycogen [when exercise is] somewhere between 50-90 minutes duration. Simultaneously, fat & lean muscle is recruited to make up the differences from muscle glycogen depletion. Markers of this phenomenon are increased heart rate and malondialdehyde waste byproducts. Malondialdehyde is a form of free radical that requires systemic antioxidants to neutralize. Unfortunately, the body is less able to keep up with this waste byproduct

of metabolism because endogenous enzymes superoxide dismutase, catalase, and glutathione are reduced by free radical [malondialdehyde] excess. There are numerous papers that show both IV & oral p.o. dose antioxidants reduce free radical excess resulting in prolonging the inevitable "bonk" that comes with prolonging a pace destined to fail as a consequence of this observation.

The point in solving a state of depletion is accomplished by either repletion of reducing agents or cessation of the depletion-provoking activity.

Again, this study/article doesn't convince nor persuade me to change or alter my supplementation of antioxidant nutrients. I hope it doesn't persuade you to change or alter your intake of these all-important nutrients as well.

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Riders during CORPScamp Death Valley.
Photo - Chris Kostman

The Seven Pillars of Athletic Performance : Efficiency in action, part two

Author : Chris Kostman

Life on the endurance path has taken me around the planet and into many universes over the last 27 years. Competing in 3,000 mile cross-country bicycle races, 100 mile snowshoe races through the Alaskan wilderness, France's 48 hour Triple Ironman triathlon, I've covered a lot of ground. I also scuba dive in underground caves and deep wrecks and have led or participated in many, many expeditions into terra incognita.

The primary assets I've used on my quest over all these years are DESIRE and EFFICIENCY.

If you have the desire to live on the endurance path, this article will teach you efficiency, a character trait and process which should be your primary focus. With desire and efficiency in your metaphorical quiver, the world is yours.

In the first half of this article we discussed the first three pillars of athletic performance: posture, breath, and intensity. Now we explore the remaining four pillars.

Effort

Effort is what you're putting out, what your actual work output is at any given moment ("against" the intensity), which is totally within your control. Since efficiency is the point here, the goal

is to put out as little effort as possible while still achieving the desired result. This is what I call "minimal investment for maximal return." "Waste not, want not" is another way of looking at it. The

7 PILLARS of Athletic Performance

Posture
Breath
Intensity
Effort
Hydration
Nutrition
Heart Rate

bottom line is, the efficient athlete finds ways (by working with the other six pillars) to make as little effort as possible and, when it is made, makes that effort as effective as possible. Here are some sport-specific examples of effort:

Cycling: Leg turnover speed (pedaling cadence), part of the measure of power. Indoor cycling: Leg turnover speed (pedaling cadence), part of the measure of power.

Skiing: Working and carving the snow athletically, rather than just letting

gravity do it all.

Swimming: Arm turnover speed and, to a lesser extent, kicking speed.

Martial arts: Velocity and power of kicks, blocks, and punches, plus depth and strength of stance and posture.

Strength training: How hard one gracefully moves the weight or works against the resistance.

Foot sports: Leg turnover speed, stride length, strength of push-off, and knee height.

Hydration

The hydration pillar becomes a relevant factor in athletic sessions involving greater endurance (90 minutes or more) and in more extreme conditions, such as high heat or severe cold, where water intake quickly and demonstrably affects blood thickness and flow. However, as many people are chronically dehydrated, hydration can become a meaningful pillar even during short duration athletic workouts.

Hydration serves many functions during athletics, including aiding in the cooling or warming of the body, speeding digestion, and, most importantly for our purposes, thinning the bloodstream to allow more efficient transport of oxygen to the muscles.

Seven different winters, I traveled to Alaska to compete in the Iditarod 100-mile snowshoe race or 200-mile mountain bike race on the snow-laden Iditarod Trail. Held each February, the temperatures averaged 15 above to 20 below zero. In extreme temperatures such as these, hydration becomes crucial to staving off hypothermia and frostbite. Like my oxygen blast during

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the Race Across America, my firsthand experience of the quick and decisive role of hydration during the Iditasport has forever impacted my understanding of physiological efficiency. In Alaska I've become aware of how quickly my blood will thicken during the race - literally within fifteen minutes of not drinking anything - causing my hands and feet to start freezing up, feeling cold, going numb. The longer I would go without drinking, the further this numbing and freezing would travel up my arms and legs. Yet, I learned that by taking three to five big gulps of liquid, and taking up to ten deep, full breaths (as described above), I can push that freezing right out of my limbs within minutes!

The lesson learned is that we are often, if not always, dehydrated to some degree, which in turns thickens our blood and slows the delivery of oxygen to the muscles. By bringing our awareness to this, we can use intentional "extra" intake of fluids to directly and immediately affect our overall efficiency (keeping mind that we can also over-hydrate, which must also be avoided). So for example, when I'm working to attain a certain heart rate goal, I will make sure to hydrate properly in order to quickly affect my own physiology in action. This works fast and becomes increasingly more meaningful during longer duration and more extreme conditions.

Nutrition

This pillar, in terms of immediate application during the actual athletic session (as compared to general, day-to-day nutrition), becomes an issue in athletic sessions of approximately one hour or longer. As with hydration, the longer and more intense the session, the more this pillar becomes critical.

For example, many athletes believe that only carbohydrates play a role in energy production during cardiovascular exercise. However, studies have shown that during ultra-endurance activities, protein becomes increasingly utilized during the activity as an energy source. The body's muscles must be able to replenish and reconstruct themselves during the actual athletic activity. During multi-day races such as Furnace Creek 508, Primal Quest, Badwater

Ultramarathon, or Marathon des Sables, the body eventually utilizes protein for fifteen percent or more of its energy production. Awareness of this allowed me to actually gain muscle mass during the Race Across America: I dropped from eleven to seven percent body fat and lost only four pounds of total weight, thus actually increasing my muscle mass during eleven days of nearly non-stop cycling.

The lesson here is that during any athletic activity of an hour or longer, significant gains can be made in overall efficiency and performance through carefully consuming the proper nutrition. This may seem obvious, but in my experience most athletes I know consistently malnourish and improperly fuel themselves. This can be

avoided by emphasizing quality over quantity and eating (or drinking) foods that are more quickly bio-available, such as Perpetuem from Hammer Nutrition Foods like these, whether "real" or "from the lab" are effective because they are a more complete food source, rather than just a quick sugar fix.

Heart Rate

Heart rate is the body's barometer to indicate the totality of the athletic experience. In other words, your heart rate at any given moment is THE RESULT of what you are doing with the other six pillars at that moment: Combine Posture with Breath with Intensity with Effort with Hydration with Nutrition and the sum of those parts is your heart rate!

Thus heart rate is the one pillar which is most quantifiably affected by working with the other six pillars, because heart rate is expressed as a number and

literally exists within the moment. It was, in fact, my quest to consistently perform at a high workload (heart rate) that led me to the specific development of this efficiency system. Essentially, I would discover a specific heart rate (not a zone, but a specific heart rate) that I could maintain almost indefinitely, depending on the activity, then I would work with the other six pillars to achieve that "heart rate goal." My goal might

be to do as much work as possible (say, ride my bicycle 100 miles as fast as possible) with as little heart rate "cost" as possible (perhaps spending 90 percent of that time at a mere 110 bpm). By becoming familiar with all seven pillars under various circumstances, I discovered heart rates that I could maintain for given amounts of time with very little overall cost. Then I would achieve that heart rate goal by working with the other six pillars, thus becoming truly

efficient, almost a perpetual motion machine.

So there you have it, the Seven Pillars of the Kostman Efficiency System for Athletic Performance. Focus your energy and spend time on developing the seven pillars of your athletic experience and you will surely realize gains in overall performance and enjoyment, regardless of what your athletic expression of choice may be. The system works beautifully and I wish you the best of luck on your athletic journey. (However, please don't use my system to beat me in my next race!)

Chris Kostman has lived on the endurance path since 1982. Besides competing in races as diverse as the Race Across America, the Triple Ironman, and the 100-mile Iditasport Snowshoe Race, he also organizes endurance events such as the Badwater Ultramarathon and Furnace Creek 508 and a series of five day cycling and yoga camps in Death Valley and Mt. Shasta. This is his eighth article for Endurance News. Learn more at www.adventurecorps.com.



*Self-portrait of the author while pre-riding the Hell's Gate Hundred route in and around Death Valley.
Photo - Chris Kostman*



Suzy and friends get ready for Wildflower.
Photo - courtesy of Suzy Degazon

Wildflower 2009

Author : Suzy Degazon

It is the first weekend in May and for the last 27 years thousands of triathletes have made their way to California's Lake San Antonio to experience the thrill of Wildflower. I was one of the thousands this year and had opted to compete in the long course which consisted of a 1.2 mile lake swim, a 56 mile hilly bike, and a 13.1 mile run.

My husband Al had signed me up for the event at Christmas and it was to be part of my birthday treat. I was also moving into a new age group - the 45-49 competitive grouping. As usual something always happens before an event and a cat I had been looking after outside decided to become a mommy cat the day before we were due to leave on our 5 hour car ride! After taking care of food and bedding, we set off later than we had planned and managed to get lost only once along the way. After backtracking and asking for directions at the Bee Rock store we were soon on our way.

The weekend forecast called for rain and when we arrived at Monterey County park there was light drizzle. We showed our camping pass to the attendant and set out looking for a spot to call our own. We ended up not too far from the entrance up a muddy fire trail. Asking the campers next to us if it was alright to set up camp near them I heard a familiar voice and turned to see Brendon Halpin who worked last summer at Hammer Nutrition's headquarters. It was a nice surprise to see him there with a group of Montana triathletes!

While Al was busy setting up camp in the little bit of daylight that was left, I made sure my Cannondale bike was ready to roll for tomorrow's 56 mile ride. I changed to good racing wheels, putting on new Serfas tires, checked that my SC600 cycling monitor was picking up speed, and then Al took it for a ride to check that the gearing was not slipping. The only thing left to do was pick up my race packet and everything would be set.

The packet pick-up was at the transition area, which was at the base of a steep hill called Lynch Hill. The race organizers had a shuttle, which I caught after showing my ID and USAT card, to transport athletes back and forth. I was given a purple swim cap, timing chip, and race number. I quickly bought a pair of socks, as I had left mine at home, and then the shuttle transported me back up the hill. The daylight was really starting to fade and the rain had picked up. Al and I sat in the Dodge eating PB&J sandwiches and I was suddenly happy that I had remembered my Brooks Trail shoes. Tomorrow's run was 60% trails and with this rain it was likely to be muddy!

The Swim

During the night the heavens opened and rain it did! I slept well and though it was a little cool when I awoke it was a beautiful morning. My main concern of the morning was what I was going to wear. Because I was in the 45-49 group my swim did not start until 9:25 am. As I was relaxing and having my morning coffee I discovered that everyone had to

rack their bikes by 8:00 am. Yikes - there went my coffee and breakfast! Al stayed at the campsite and I rolled down Lynch Hill which was still wet and slippery. An announcer was telling all athletes to be careful as one triathlete discovered his brakes did not work and his race ended before it started!

After finding my bike spot I did not have enough room to set up my transition as the woman opposite me had laid out a HUGE bath towel and her bike right over my spot! I looked for another patch of asphalt and set up my gear. There were still 90 minutes before the swim start so I went back to the campsite. I was certainly warmed up by the time I trekked the 2 miles up steep trails and had a minor panic attack when I couldn't find our site! I finally saw Al who wished me luck, told me to be safe, and to have a fun race. I grabbed my Hammer Nutrition fuels and left again to run back to the transition area. I put on my Profile-Design Wetsuit, consumed a Hammer Gel, and then walked to the swim start.

At 9:25 am the gun went off and the water teemed with purple swim caps. I was off on my personal journey of 70.3 miles and this was just 1.2 miles of that experience. As much as I love my sport there is a lot to be said about the swim, arms thrashing everywhere, women swimming over me... I went to breathe and another woman dunked me! Wow talk about piranhas! This was a swim for survival and I was happy to have put my timing chip under my wetsuit as I would have surely lost it with all this contact. I kept repeating "I am enjoying this mayhem!" trying to remember Caoch Martha at Tri La Vie saying relax, upwards, and onwards to her women group! As I approached the turnaround buoy silver swim caps started passing me which meant the

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fast relay swimmers were making head way. I passed a few green caps from the 40-44 grouping, sighted the finish chute, and was dismayed to see a huge sea of yellow swim caps! The mountain bike triathletes, whose swim was 200 meters, were exiting the water at the same time and so things were a little congested. Finally I made contact with murky green bottom of the lake and soon found my self running through the chute and over the timing mat. I found my bike and wasted time in transition deciding whether I needed arm warmers or not. I finally opted for gloves; I was wearing my trademark Hammer pink tri suit, Rudy helmet, and glasses. I managed to get in a Hammer Gel and was soon heading out on to the bike course.

The Bike

The first two miles of the bike is a small climb nothing too steep but the difficulty is that the mountain bikers share the road for the first mile, and for me it was a nightmare as they were all over the road zigzagging from right to left not looking behind them! One girl stopped right in front of me on a small hill and it took everything I had to swerve around her and not go down myself or hit the cyclist in front of me! They soon left the asphalt for trail and then the real cycling could begin. I kept climbing and hydrating with my multi-hour bottle of Perpetuem and Endurolytes. The actual 56 mile bike course is beautiful and very scenic and I really enjoyed the challenging climbs and rapid descents. The views of Lake Nacimiento, better known as the dragon lake, were literally breathtaking as the view comes right after the "Nasty Grade." I felt great the whole ride by making sure I kept up with the Perpetuem and Endurolytes and saying thank you to all the volunteers out there. As I turned on to Lake San Antonio road I sensed the transition near, I could see other athletes already doing the run. With 4 miles to go I passed Rudy Garcia Tolson, wow he really is inspirational and when he finished the 70.3 he became the first athlete ever to finish this challenging course as a double amputee!

After a hairy descent down Lynch Hill I was told to slow down and get off my

bike, I walked over the timing mat and went to change into my Brooks trail shoes which felt great as I had soaked the insoles with Kool n' Fit spray, ate a Hammer Gel, put on my fuel belt, and set off...

The Run

13.1 miles, or as I like to say 1 mile 13 times! Well hydrated I set off into the



*Suzy rides the bike portion at Wildflower.
Photo - courtesy of Suzy Degazon*

sun on a brilliant day. The run was mostly trails and very well marked with aid stations every mile. I only had to rely on water as I carried my own Hammer Gels and Endurolytes. The trails were challenging with loose dirt and some wicked climbs which were difficult to run due to the lines of tired athletes walking these single tracked sections. Every aid station had enthusiastic college students cheering on the runners. As I approached the last few miles my husband was waving at me from his mountain bike and taking photos which seemed to make me pick up my step. After running through the campgrounds, the last segment is an out and back mile. The final mile is down Lynch Hill and I tried to run smoothly as to not jar my quads on the steep descent. I was soon running through the finish chute with people on either side cheering. My name was announced as I crossed the final timing mat in a time of 6 hours 6 minutes and 23 seconds! I had done the bike in

a respectable 3 hours and 12 minutes and ran a slow 2 hours and 3 minutes. I survived the swim and the mountain bikers and now proudly had a finisher's medal around my neck!

I saw my friend Jodi at the finish area and was really happy when I found out she had won the age group 45-49! Unfortunately she had then been DQ'd because she lost her timing chip after the swim. I spent a few minutes at the timing tent were Jodi told the officials what happened, and then I went to find my husband. I really enjoyed Wildflower and was pleased with my time. It was fun seeing a bunch of Hammer athletes out on the course and I even had time to catch up with Kevin from Finishline-Multisports. After hiking up the 2 mile trail with my bike I soon found Al at our campsite and we began breaking it down. I visited with Brendon from Hammer Nutrition one last time; he smoked the course in 4 hours and 17 minutes and was the first amateur across the finish line!

A week later the results were finalized and it turned out they had a number of hiccups with the timing system. Despite my friend losing her chip she was reinstated as first female in 45-49 and I had the honor of being the 13th female in the group to finish. More importantly I was able to raise \$495 for Avon of Puerto Rico's Breast Cancer Crusade. I would like to thank Hammer Nutrition, Serfas tires, Profile -Design Wetsuits, Brooks running shoes, Polar Monitors, Cannondale, Rudy Project helmets and glasses, Fuel Belt, Kool n' Fit, and my husband for the long hours on the road and making sure I was safe!

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Marshall Opel, of Hammer-sponsored Team CMG, competes at the Fish Trails Criterium in Whitefish, Montana.
Photo - Angela Nock



Race Report

Hammer athletes

Team Hammer & Team Happy Hammers - Malaysia

The inaugural South East Asia XTERRA off-road triathlon was held on the beautiful coastline of Kuantan, Malaysia. There was a total of 500 competitors with some 40 percent of the competitors from overseas, together with their families and friends. Hammer had 3 solo athletes competing and a late entry relay team called the Happy Hammers. The race involved a 1.5km swim in the normally clear blue waters of the South China Sea (with temperatures typically warm around 32 degrees Celsius). Then a 35km mountain bike course thru the green jungle and palm plantation trails which could be best described as a roller coaster ride, with descents which challenged most... particularly when the tropical skies open up. The bike ride was not overly technical, but at the same time it was not easy on the slippery and loose rocky trails. The 2 km beach finish was not the fun ride most anticipated as the tide left the sand soft in places which required

most riders to get on and off their bikes to run, ride and push as conditions changed. It was a tough final 2kms home. The trail run was about 8.5km (2 x 4km loops) and was very technical – a trail that did not allow any rhythm to seasoned runners. Steep stairs to climb and descend and many roots, rocks and trees to make the run that little more interesting and certainly more challenging. Like the bike... the final 300-400m to the finish was along the sandy beach. Prize money totalled US\$30,000 in cash prizes to the top 3 winners of all respective categories and “finisher medals” to all finishers.

The event was a great success and enjoyed by all. When the tropical rain started midway thru the mountain bike leg, the Hammer solo competitors just smiled all the more. Mountain biking is our strongest discipline and the more technical and more challenging the better. The trails became very slippery

Fraser Morrison, Lynda Scott, Paul Moir



Team Happy Hammers

and for us – a lot of fun!

HAMMER RESULTS:

Female (40-44): Category Winner:
Lynda Scott (Team Hammer)

Male (40-44): Category 3rd Placed:
Fraser Morrison (Team Hammer)

Male (50-54): Category Winner:
Paul Moir (Team Hammer)

Relays: Team Happy Hammers (Victor Young, Denise Moir & Matt Wheeler):
19th placed (47 teams, with a 30min navigational error).

Cameron Castro

I just wanted to give you an update on my son, Cameron Castro. He is 8 years old and is a dedicated Hammer user. He loves the orange HEED. He did the Ironkids Triathlon in San Diego and took 2nd place!

Thank you for your support!
Sal Castro



The crew poses in a rare moment of downtime.
Photo - Smith River Handcrew



Race Report

Smith River Hotshots

Though not a "typical" race report, we received photos and this great testimonial from the Smith River Hotshot crew and wanted to share them.

For those readers who are unfamiliar with forest fires, a Hotshot crew is described as the following on the US Forest Service website... "Hotshot Crews started in Southern California in the late 1940s on the Cleveland and Angeles National Forests. The name was in reference to being in the hottest part of fires. Their specialty is wildfire suppression, but they are sometimes assigned other jobs, including search and rescue and disaster response assistance. Hotshots not busy fighting fire will also work to meet resource goals on their home units through thinning, prescribed fire implementation, habitat improvement or trail construction projects. All crews require that personnel be available 24-hours per day, 7 days a week during the fire season, which typically last six months. Fire assignments may require members to be away from home for several weeks at a time. The crews travel, primarily in the West, by truck, van or plane. To get to the more remote fire sites, crews either hike or are flown in by helicopter. Crew members pack all the water and supplies needed for work shifts that frequently exceed eight hours, and may be 12 hours or longer. Crews sleep on the ground and are lucky to get a shower every couple of days."

From that description, we think they definitely qualify as endurance athletes!

Hey there,

The crew wants to send a huge "THANK YOU" to everyone at Hammer Nutrition for being so supportive with the discount. Every one of us uses your products daily. From Recoverite and Premium Insurance Caps for our post-workout recovery to Hammer Gel, HEED, and Endurolytes out on the fireline, and of course the Tissue Rejuvenator to keep the knees happy while carrying 45 pounds around all day. I can think of several occasions when Endurolytes have prevented some serious heat-related injuries while working to either get into fires way out in the wilderness or working hard to suppress them. You all are great and we make every effort to brag and promote your products to many others, usually with great success.

Anyway, thanks again!
Arin Doyle

One of many burnout operations.
Photo - Smith River Handcrew



Patrolling the fireline to make sure it holds.
Photo - Smith River Handcrew



Hiking out after a long day of work.
Photo - Smith River Handcrew





Jamie Donaldson (#262) competes at the World 24-Hour Run Championships in Bergamo, Italy. Read the article on page 38 to see how she did!
Photo - courtesy of Jamie Donaldson

Race Report

Hammer athletes

Erika Proctor

I ran the SunTrust National 1/2 Marathon with Hammer Gel (Tropical) during the run and used RaceCaps before the run and took 13 minutes off my time. If that isn't awesome enough, I felt energized the whole time - no cramping, no run-down feeling, no collapsing in a heap at the end.

Erika Proctor

Timari Pruis

This last weekend (April 25th) I raced the 8-hour race that is held in conjunction with the 24 Hours of Idyllwild Race. I usually race the 24, but I have another race this weekend (Coolest 24 Hour Race) so I figured I would "take it easy". :) Anyway, things went well and I pulled off the win!

Timari

Kris Bhatti

I was at the Leona Divide race in April and wanted to share my experience with you. I started with 1 Endurolytes per 30 minutes for the first hour, then every 20 minutes for a while. I ramped up to as often as every 10 to 15 minutes during the hottest climbing section. I have never cramped during a race since I started using Endurolytes 8 years ago. For me, I can always tell that I need to up the frequency based on 3 things: sloshy stomach, sleepiness, and/or negative attitude. I'm a back of the pack runner, female, 150 lbs. I rarely get the sloshy stomach, but the sleepiness and attitude are just like a red light on the dashboard

for me. The body feels fine, no need to stop, I just want to close my eyes and sleep. I'm normally so happy to be out on the trails, loving every minute, but when the electrolyte balance goes off, my attitude really stinks. It's incredible how fast that turns around when I take Endurolytes.

As usual, I took only water from aid stations, ran on 100% Hammer products, and I now have a new 50 mile PR from this race, 12:46 - Thanks again Hammer!

Kris Bhatti

Eric Overton

Attached is a photo from the 2009 Calvin's 12 Hour Challenge on May 2, 2009 in Springfield, Ohio. I placed third (bronze) with 229 miles. I used Endurolytes and read the newsletter which I share with my club members. I love the jersey, especially the yellow pockets. I tend to wear it on my most important events and popular organized tours.

Thanks Hammer!
Eric Overton

Photo by Sharon Mack



DO YOU WANT TO HAVE YOUR RACE REPORT PUBLISHED?

ATHLETES...do you want the Hammer Nutrition community to know what you're up to? Have a great, copyright-free photo you want to share? Send a short email to athleteupdates@hammernutrition.com (please put Race Report in the subject line) about your recent accomplishments and we'll try to include it in our Race Report. *Photo note: please ensure that all photos submitted are high resolution at 300 dpi or at least 500 kb in size. Thanks!*

Steve Bruno

I had a successful weekend at the XTERRA West Cup Sport triathlon at Lake Las Vegas, NV. I finished 3rd in my age group (45-49) and 25th out of a field of (approx.) 125, with a time of 2h:01m:15s. The course was challenging, very windy, and the temperature was favorable but very dry.

Here is what I did for fueling:

I ate 2 hours prior to the start – oatmeal and coffee.

30 minutes prior to the start I took 2 Endurolytes.

My hydration pack had HEED (3 scoops) mixed into 30 oz. of water. I also mixed in 3 Endurolytes capsules.

I had a serving of Espresso Gel from my flask – about 5 minutes into the bike. I also consumed a serving of gel before leaving T2.

I consumed one flask of HEED (I mixed in one Endurolytes capsule) during the run along with one serving of Espresso Gel.

When I crossed the finish line, I felt great! In the past I have experienced cramping in the run and I was sore for 2-4 days after the race. This time around I experienced no cramping, the only soreness I felt was in my calves (I had to push my bike up two hills, and the run course was very hilly). The fuel during the race was a key factor.

Thanks for your support!
Steve Bruno
Aliso Viejo, CA



Lois Marquardt

The West Cup of the Xterra mountain bike triathlon was held today. I was the winner of my age-group and have qualified for the World Championship in Maui!

It was a brutal course and painfully hot but my regimen of Sustained Energy, Anti-Fatigue Caps, and Mito Caps got me through. My recovery protocol was Recoverite, Super Antioxidant, and Endurance Amino.

Thank you, Hammer, for enabling me to finish such a challenge and realize my goal of qualifying for Maui!

Regards,
Lois Marquardt



Marcus Scotney - Scotland

I just wanted to say a big thank you for making such amazing fuels with great flavors. Four weeks ago I did my first 100km race where I used HEED and the new Caff  Latte Perpetuem (which has to be the best ever flavoured sports drink I have tried!)

I had a great race, running 7hrs 16min for my debut, finishing 3rd in the UK 100km Championship, and also winning gold in the Scottish 100km Championships which were incorporated into the race.

I wouldn't have been able to do such a great debut if it weren't for Hammer fuels, so thank you all for such incredible and great tasting fuels.

All the best,
Marcus Scotney

Herb Kialik

I did an official 50K this weekend at a Hammer sponsored event. It was a trail run and tough... maybe not for Steve Born and crew but for me it was tough! I did the drill of Anti-Fatigue Caps 2 hours before the race, kept my water bottles full of Perpetuem, and drank HEED at the few water stations. At mile 21 I took 2 more Anti-Fatigue Caps, plus some Endurolytes. I finished tired and sore but within 30 minutes I was walking around feeling like I'd had a good workout but not exhausted.

Herb Kialik, CSCS
Blue Lizard Sports Performance



Paul Moir spends a little time flying the Hammer colors in the water of Kijal, East Coast Malaysia.
Photo - Brenton Moir



Race Report

Hammer athletes

Lisa Clines

Congratulations to Lisa Clines, the race director for the VikingMan Triathlon in Burley, Idaho, on her recent 1st place age group win at the Capital of Texas Triathlon on May 25th. Lisa not only won the Female 50-54 division (2:27:56), she placed 14th overall out of 468 female finishers. Way to go, Lisa!



Team Happy Crampers

I just wanted to tell you all how pleased we are with your products!! Recently, I put together a team to compete in the Guam Extreme Adventure Race. We knew that the elements here would become a factor, so I researched through the Hammer products that I thought would be beneficial for us all. I have to say that if it wasn't for the Endurolytes, HEED, and Perpetuem, I think that we would have bonked or had problems early into the race. Thank you again for your incredible products and service!!!

Team Happy Crampers!!!
Finisher Guam Extreme Adventure Race

Gail Renee Umstead

Gail shows off her finisher's medal after a 4:32:32 at Boston this year. Nice work Gail!



Rick Velasquez

I did my first Half Marathon (www.fromthehearttoun.com) this year in preparation for Grandma's Marathon in June and as always, Hammer Nutrition products performed remarkably.

I was fortunate to place 7th overall and 1st in my NEW age group (40-49). Thanks Hammer Nutrition!

Rick Velasquez
Army Tri Club President
Photo by Amy Velasquez



Alpha Gamma Delta

Hammer makes it to Indiana University's Little 500!

I have been a client for several years and this past fall I purchased merchandise for the Alpha Gamma Delta sorority bike team. The team competed in the ladies version of the Little 500. As you can see by the photo, I purchased wind jackets and not shown are short sleeve jerseys that they used for several spring series events. I think that we were the best dressed team participating in the event!



Catie Kemp, Nola O'Donnell, Mindi Balchan, Ellen Knecht, Theresa Kretz, and Claire Troutman.

As I rode in the event in the 1960s, and am now coaching and judging, trust me, it exemplifies the true meaning of student athletes. No scholarships here, just kids competing to be competing.

We finished 14th this year and hope to train harder and do better next year. Thanks Hammer!

Chuck Taylor

Rod Wilson

I just wanted to drop a note and a picture of a monumental moment! I have been a Hammer user/abuser ;) for over a year... I LOVE HAMMER! Anyhow, I was obese at one point and dropped about 80 pounds and have been pursuing running and biking for a few years now. As spouses will attest, when only one spouse is doing this, the other half can get a bit annoyed with the amount of time that is spent in training and events. My wonderful wife has tolerated A LOT from me.



she did the training, dropped 30 pounds, and toed the line at a local 5K. I got her jacked up on 2 Endurolytes, 1 Race Caps Supreme, and a shot of Hammer Gel and off she went. It was a challenge for her but I was not going to let her disappoint herself. She crossed the finish line and was asking when we were going to find another one to do!

I make Hammer part of my everyday life and I know it makes us better people!

Rod Wilson

Rod, we were happy to read about you and your wife's decisions to get healthy and choose Hammer to help. As our way of saying "good job", you've got a free jug of Hammer Gel headed your way. Keep it up!

About 3 months ago, she made a decision to get healthy. I challenged her to pursue doing a 5K, which would be the first time in her life she ever ran. Bottom line...

Sebastian Lauterbach - Sweden

Thanks again for your excellent service! Just wanted to tell you that I ran Stockholm Marathon this Saturday and relied solely on Perpetuem, Endurolytes, and Anti-Fatigue Caps. All I added was water from the aid stations, nothing else. It was a test to see how my body would react to these products under race stress. As the temperature reached 28° C, many runners hit the wall, but I stayed strong and came in with a new PR of 3:55. I shaved off 20 minutes from last year!

After the race my body felt fresh and I hopped on my bike home, singing and smiling! Runners high big time! This is by far my best race ever, and I believe that your products made it possible. I'm doing a 68K in 2 weeks and will have yet another chance to test my strategy for the 100 miler I'm doing in August.

Sincerely,
Sebastian Lauterbach

Ernst Z'berg - Switzerland

Ernst Z'berg, captain of the Hammer Nutrition Team Switzerland, competes at the 2008 Pilatus-Berg Triathlon. The event consisted of a swim in Lake Alpnach, a 14km bike with 925m of altitude, followed by a 4km run to the top of Mount Pilatus at 2100m.



Photo - courtesy of Alpha Foto

Product Spotlight

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Banish cramping and finish in style!

HAMMER
NUTRITION
SUSAN K. YELLS

ENDUROLYTE
ELECTROLYTE REPLENISHMENT

Full spectrum, proportionately
balanced, chelated mineral formula

120 Capsules
Made with natural ingredients

Dietary Supplement

HAMMER

120 capsules \$19.95
150 powder servings \$19.95
4 capsule sample \$1.00



ENDURANCE FUELS

This testimonial was unsolicited and has not been modified.